AirFree®
PRODUCTS

FAQ, Tests & Information

P1000

- Capacity: 450 sq ft/42m^2
- Dimensions:
  8.4”(diam) X 10.4”(height)
  21.5cm X 26.5cm
- Electric consumption: 45W
- Warranty: 2 years
- Weight: 2,4 lbs (1,09KG)
- Noise level: Totaly Silent

P2000

- Capacity: 550 sq ft/51m^2
- Dimensions:
  8.4”(diam) X 10.4”(height)
  21.5cm X 26.5cm
- Electric consumption: 48W
- Warranty: 2 years
- Weight: 2,8 lbs (1,27KG)
- Noise level: Totaly Silent

How Airfree works?

Contaminated air silently enters Airfree by air convection and is sterilised inside Airfree patented ceramic core where all microorganisms are destroyed/ incinerated at high temperatures. Regardless of how hazardous a virus, fungus or bacteria might be they can not resist the powerful heat inside the ceramic core and are incinerated. The heat inside the ceramic core forces sterilised air out to the heat exchanger causing air convection, which generates negative pressure underneath the ceramic core, so contaminated air is “sucked” in at Airfree bottom air inlets in a continuous and silent thus efficient air flow.

The association of the ceramic core, special ceramic and air flow reduces at the same time toxic ozone.

FAQ

Airfree® PRODUCTS

Frequently Asked Questions

1 . How does Airfree work?

Airfree incinerates microorganisms at its heated capillaries. Contaminated air is dragged into Airfree's ceramic core by air convection and microorganisms are destroyed at high temperatures regardless of how resistant and dangerous they might be.

2. Are there any side effects?

No. Airfree's new technology uses heat to purify the air. No side effects, no emissions, NO IONS, nor new particles are generated. Airfree should be used in all homes and offices quietly, constantly and efficiently purifying the air.

3. My Airfree does not stop blinking. What does that mean?

Airfree incorporates state of the art electronics detecting any improper placement or device malfunctioning. If the top blue light does not stop blinking, please ensure that your Airfree unit is in the upright position.
If the top and bottom air inlets are free of blockage the blinking may be due to a faulty electrical outlet. Please plug it in a proper outlet. If after one minute the top light continues blinking and your Airfree unit is correctly installed, this indicates that the device is malfunctioning, Please promptly return it to your dealer.

4. Is there any risk when the top light of Airfree is blinking?

No. When Airfree electronics detect any irregularity it automatically shuts off the TSS® ceramic core

5. What is Airfree's air cleaning capacity?

Airfree P1000 was designed for rooms up to 450 sq. ft. (42m²); Airfree Platinum 2000 was designed for rooms up to 550 sq. ft. (51m²) .

6. Can I install Airfree in my walking closet?

Yes, as long as it has at least 400cu.ft (11m³)*. Airfree should not be placed under shelves or its efficiency will be reduced.
* as reference 400cu.ft (11m³) is approximately 7'x7'

7. Can I use Airfree in air conditioned rooms?

Yes.

8. How do I know if Airfree is no longer working?

Check the top lid and if warm Airfree is working.

9. Can I place Airfree at the corridor to reach the whole house?

No. Airfree will just reduce air pollution in the corridor's area.

10. Can I place Airfree in a closed room?

Yes. Please remember such a room must have at least 400cu.ft (11m3)*.
* as a reference 400cu.ft is approximately 7'x7'

11. Is it necessary to keep doors and windows closed?

No

12. Does Airfree eliminate bacteria and viruses?

Yes. Unlike the air filters in the market Airfree is more efficient with smallest microorganisms as they are easily carried by Airfree's airflow into its heated ceramic core.

13. Can I change Airfree from one room to another?

No. Airfree must always be plugged in the same room 24 hours a day. Airfree's patented technology works gradually and cannot have its cycle interrupted. Moving it from one room to another will interrupt the cycle.

14. Should I turn off Airfree when I leave house?

No. Airfree must always be on.

15. What happens if Airfree is disconnected or there was a black out?

Airfree will take approximately the same time to recover the previous reduced contamination level.

16. Does CADR measure the effectiveness of the Airfree?

Not at all. CADR is not designed to test the Airfree technology.
The AHAM seal (usually found on the back of an air cleaner's box) lists three Clean Air Delivery Rate (CADR) numbers: one for tobacco smoke, one for pollen and one for dust. The CADR indicates volume of filtered air delivered by an air cleaner. The higher the tobacco smoke, pollen and dust numbers, the faster the unit filters the air.
The main reason why CADR is not designed for Airfree is because Airfree does not filter but destroys microorganisms instead, CADR only applies to volume of filtered air delivered by an air cleaner as stated above.
CADR does not measure microorganism reduction like mould and bacteria only detectable by a microbiology lab.
Airfree destroys (not trap or attract to other surface) any microorganism regardless of how small they might be. 99,99% of all organic particles are fully destroyed when passing through the Airfree U.S. patented ceramic core.

17. How does Airfree destroy dust mites?

Mold reduction in the atmosphere causes a reduction in the mold dependant dust mite population.
Airfree also destroys the harmful toxins and fungus freed by dust mite feces that trigger respiratory allergies.

18. How does Airfree eliminate fungi?

As mentioned before, Airfree eliminates airborne microorganisms included fungi and spores. By eliminating spores no new colonies will be formed, meaning less future fungi and spores in the air.

19. How does Airfree destroy viruses?

Those microscopic microorganisms are easily eliminated inside Airfree's ceramic core capillaries. Inside temperature of Airfree capillaries is triple the temperature required to incinerate them. Airfree is your largest ally in respiratory disease prevention.

20. Does Airfree reduce tobacco smell?

Yes, Airfree reduces any kind of organic smell in the ambience including tobacco.

21. Does Airfree release any gas or chemical product?

No. Airfree's sterilization process is natural. Please check our website for conclusive tests regarding particles and O3.

22. Does Airfree heat up a room?

No. Airfree does not increase room temperature. To have an idea 2 Airfrees plugged in the same room will contribute as much heat as the presence of one adult in that same room.

23. Does Airfree provoke any change in room's the relative humidity?

No.

24. Does Airfree need filter replacement?

No. Airfree's technology uses heat and not filters nor dangerous emissions.

25. Does Airfree consume a lot of energy?

No. Airfree's consumption is just 45 Watts for the P1000, and 48 Watts for PLatinum2000.

26. Can Airfree heated top lid burn children?

No. Just the heated top lid's middle center is around 183.2°F (84°C) for P series, which is not enough to burn a child's hand.

27 - Does Airfree anti-stress light interfere with Airfree sterilizing function?

No. The anti-stress light has an aesthetic effect and can be relaxing too or simply used as a night light in children or newborn bed rooms. According to chromo therapy the blue light has calming and relaxing effect.

INETI
INSTITUTO NACIONAL DE ENGENHARIA E TECNOLOGIA INDUSTRIAL

TESTS

National Institute of Industrial Technology and Engineering
Lisbon/ Portugal

Testing Airfree efficiency in reducing airborne mold and bacteria in a 645.8 sq. ft. room. Reduction: Mold 96%, Bacteria 88%.

Airfree® PRODUCTS

S R

Ministério da Economia e Inovação
INSTITUTO NACIONAL DE ENGENHARIA, TECNOLOGIA E INOVAÇÃO I.P.
Laboratório de Microbiologia Industrial
Azinhaga dos Lameiros à Estrada do Paço do Lumiar 1649-038 LISBOA Telef: 21 716 51 41 Fax: 21 716 69 66

Pablo

Report Ref: 904 / 05

EFFICIENCY OF AIRFREE P AIR CLEANER ON THE REDUCTION OF AIRBORNE MICRORGANISMS IN CLOSED ENVIRONMENT.

AIM

The main goal of this study was to verify an air cleaner (Airfree P) efficiency on the reduction of bacteria and fungi suspended in the air in closed environments. The study intended to analyze the airborne microbial charge in room 1070 of the Industrial Microbiology Laboratory of INETI, during the functioning period (36 days) of the referred device.

METHODOLOGY

Protocol

The device was installed in room 1070 of the Industrial Microbiology Laboratory (LMI) after 11 days of regular utilization without any kind of cleaning or disinfection. That room has an approximate area of 60 m^2 (645.8 sq ft) and is characterized as being a Molecular Biology laboratory. The average frequency to this room was 7 to 9 people per day.

The test had 54 days duration. The device was turned on November 4th 2005 and turned off December 9th 2005. The air sample collections were made all Monday and Friday.

One air sampler (Merck's MAS-100) was used for air sampling having samples been taken in 3 different points in the room. From each point, 100 liters of air were collected. The count of the microorganism in suspension in the air was done in 9 cm (3.5 ") diameter Petri dishes.

S R

Pablo.

Ministério da Economia e Inovação
INSTITUTO NACIONAL DE ENGENHARIA, TECNOLOGIA E INOVAÇÃO I.P.
Laboratório de Microbiologia Industrial
Azinhaga dos Lameiros à Estrada do Paço do Lumiar 1649-038 LISBOA Telef: 21 716 51 41 Fax: 21 716 69 66

For bacteria, Trypona Soya Agar (TSA) Oxoid culture medium in Petri dishes were used and Petri dishes were incubated at 30ºC (86F) for 3 days. For fungi, Malt Extract Agar (MEA) Difco culture means in Petri dishes were used and Petri dishes were incubated at 25ºC (77F) for 5 to 7 days.

The results were expressed in **colonies forming unity (c.f.u.) of existing microorganisms per m^3** of air in the room. Each value represents the arithmetic average of three samples.

RESULTS

The results are presented on the graphic of **figure 1**:

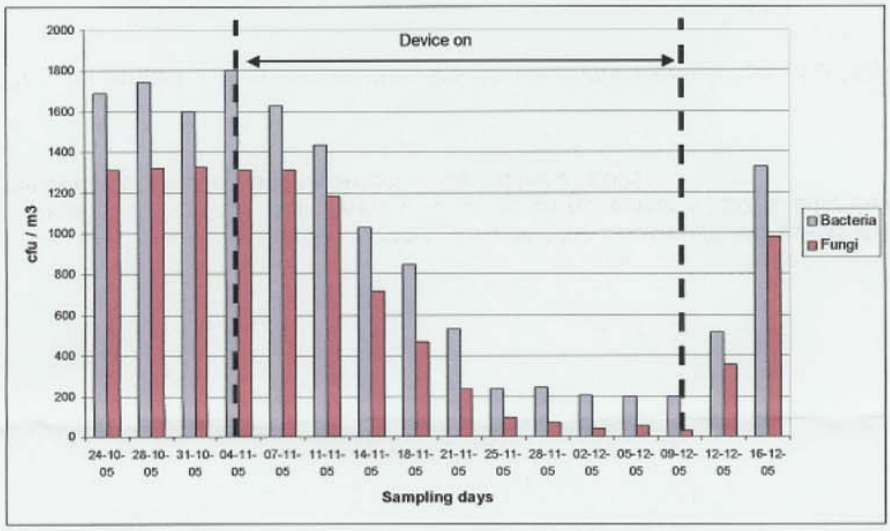


Figure 1.- Effect of Airfree P sterilizer , on the maintenance of the microbial level in the air in the environment of room 1070 of LMI. Each point represents the average of 3 countings. The device was turned on November 4th 2005, after that day samples collection, and turned off on December 9th 2005.

Through **Figure 1**, it is verified that the device under study revealed a high efficiency in airborne microbial reduction.

S R

Ministério da Economia e Inovação
INSTITUTO NACIONAL DE ENGENHARIA, TECNOLOGIA E INOVAÇÃO I.P.
Laboratório de Microbiologia Industrial
Azinhaga dos Lameiros à Estrada do Paço do Lumiar 1649-038 LISBOA Telef: 21 716 51 41 Fax: 21 716 69 66

To better specify the study of the device efficiency, the percentage reduction values are stated in **Table 1 and 2**.

Table 1. The initial and final counts of airborne bacteria charges and its correspondent reduction percentage for the tested device.

Initial Counting (cfu/m^3) Average 2 readings	Final Counting (cfu/m^3) Average 2 readings	Reduction (%)
1700	200	88

Table 2. The initial and final counts of airborne fungi charges and its correspondent reduction percentage for the tested device.

Initial Counting (cfu/m^3) Average 2 readings	Final Counting (cfu/m^3) Average 2 readings	Reduction (%)
1318	50	96

The results testify and confirm the high efficiency in the reduction of bacteria and fungi in the environment air under the studied conditions.

Lisbon, December 28nd 2005

Head of LMI

Pablo T Pereira

Pablo Tavares Pereira

SGS

TESTS

SGS Natec Institute
Hamburgo/Germany

Testing Airfree efficiency in reducing airborne mold and bacteria in office rooms equipped with carpet and central air condition. Reduction: Mold 99%, Bacteria 99%.

Airfree® PRODUCTS

SGS NATEC Institut
für naturwissenschaftlich-technische Dienste GmbH

Div. Microbiology, Behringstraße 154, D-22763 Hamburg

NA 00 0338

C & M Representacoes, Lda., Lisboa, Portugal

By order of C & M Representacoes, Lda, Lisboa, Dr. Carlos Matias, of August, 2000 we executed during September to November 2000 air analyses in two different rooms of the NATEC Institut. These rooms are office rooms with normal equipment, with carpets and air condition, which is connected to a central air condition system that constantly carries possible contamination from rooms without Airfree to those 2 rooms being tested.

In each of the rooms, which are of ca. 30 m^3, it has been installed an Airfree Air Sterilizer, which is manufactured under license of U.S. Patent 5,874,050 of 23/02/199. Concerning the technical installation we acted according to the polyglot prospectus which had been put at our disposal, called „Airfree Air Sterilizer".

During 6 weeks which the apparatus was running in the two rooms, it has been determined at the beginning and at the end of each week the total colony count respectivel yeasts and moulds, with petri-dishes (1/2 h. opening for sedimentation) as well as with an airsampler of RCS.

Results:

The results have been stated according to each room on two different pages and also with graphic, and they are showing that from the beginning of installing a continuous reduction, especially of the total colony count, can be observed, whereas these values are stated especially at examination of the airsampler per m^3.

After 6 weeks of continuous running of the Airfree Air Sterilizer the apparatus has been stopped, and for further 4 weeks the air in both rooms has been examined with both methods. The results are showing that after stopping of the Airfree Air Sterilizer the total colony count, but also the number of moulds, in the air of the rooms clearly increased.

Summary:

Due to the obtained results it can be confirmed a microbiological improvement of the air in rooms under continuous running of the Airfree Air Sterilizer.

Hamburg, 15th November, 2000

NATEC Institit
für naturwissenschaftlich-
technische Dienste GmbH

Dipl.-Biol. Regina Zschaler

NATEC Institut für naturwissenschaftlich-technische Dienste GmbH
Behringstraße 154
22763 Hamburg
Tel-Nr. 040 - 6 83 09-0
Telex-Nr. 2164230 nacd
Fax 040 - 68 30 91 70

Akkreditiert nach
DIN EN 45001
für die in der Urkunde
genannten Prüfarten
und -verfahren.
Deutscher Akkreditierungs Rat
DAP-P-01.011-00-95-01

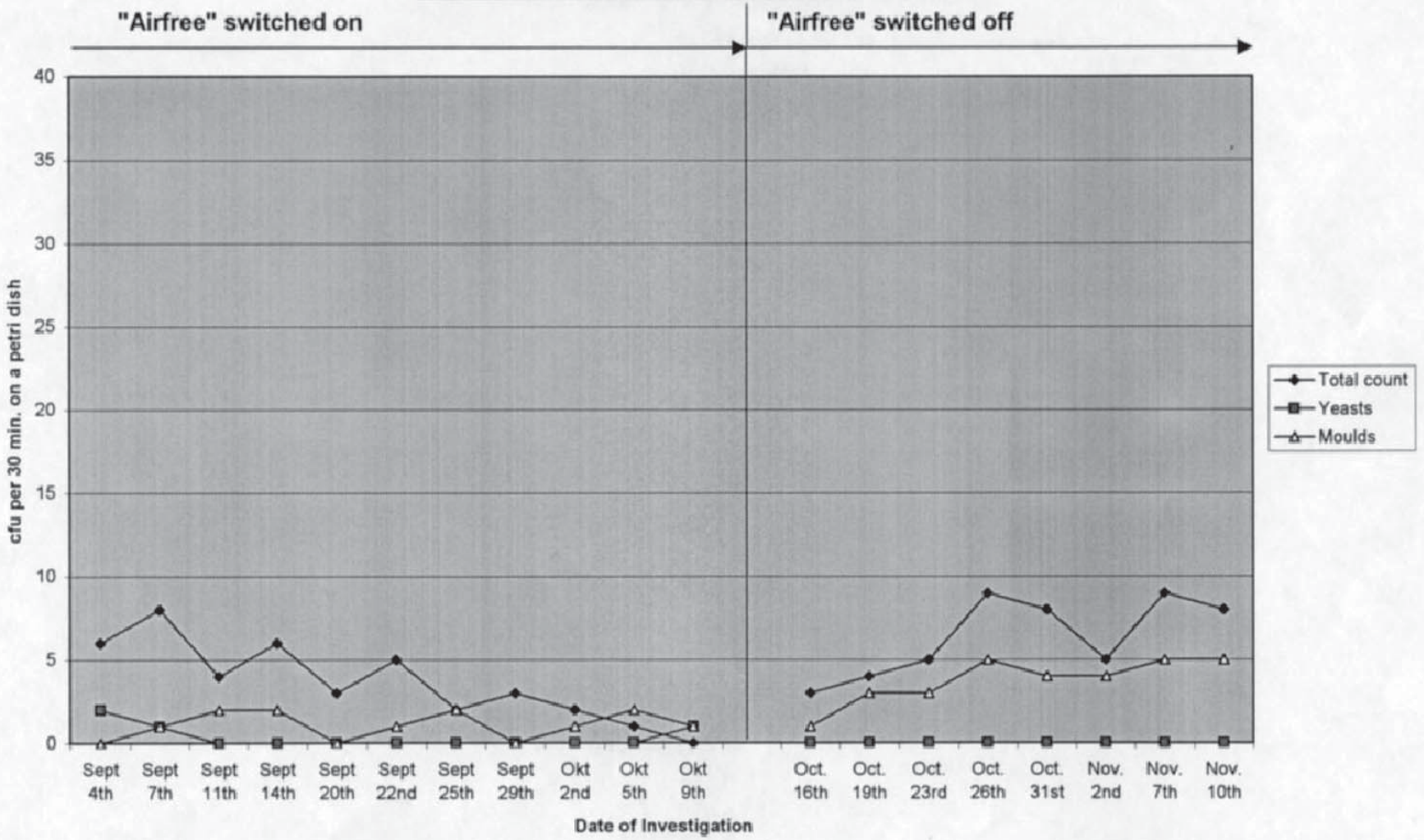
DIN EN ISO
9001
zertifiziert

Mitglied der SGS-Gruppe · Sitz der Gesellschaft: Hamburg · Amtsgericht Hamburg HRB 14087
Geschäftsführer: Dipl.-Biol. Regina Zschaler · Dr. Hermann-Josef Nienhoff · Erfüllungsort und Gerichtsstand: Hamburg · Die Veröffentlichung von Ergebnissen unserer Arbeiten und Gutachten sowie die Verwendung für Werbezwecke bedürfen – auch auszugsweise – unserer schriftlichen Genehmigung.

NATEC

SGS NATEC Institut
für naturwissenschaftlich-technische Dienste GmbH

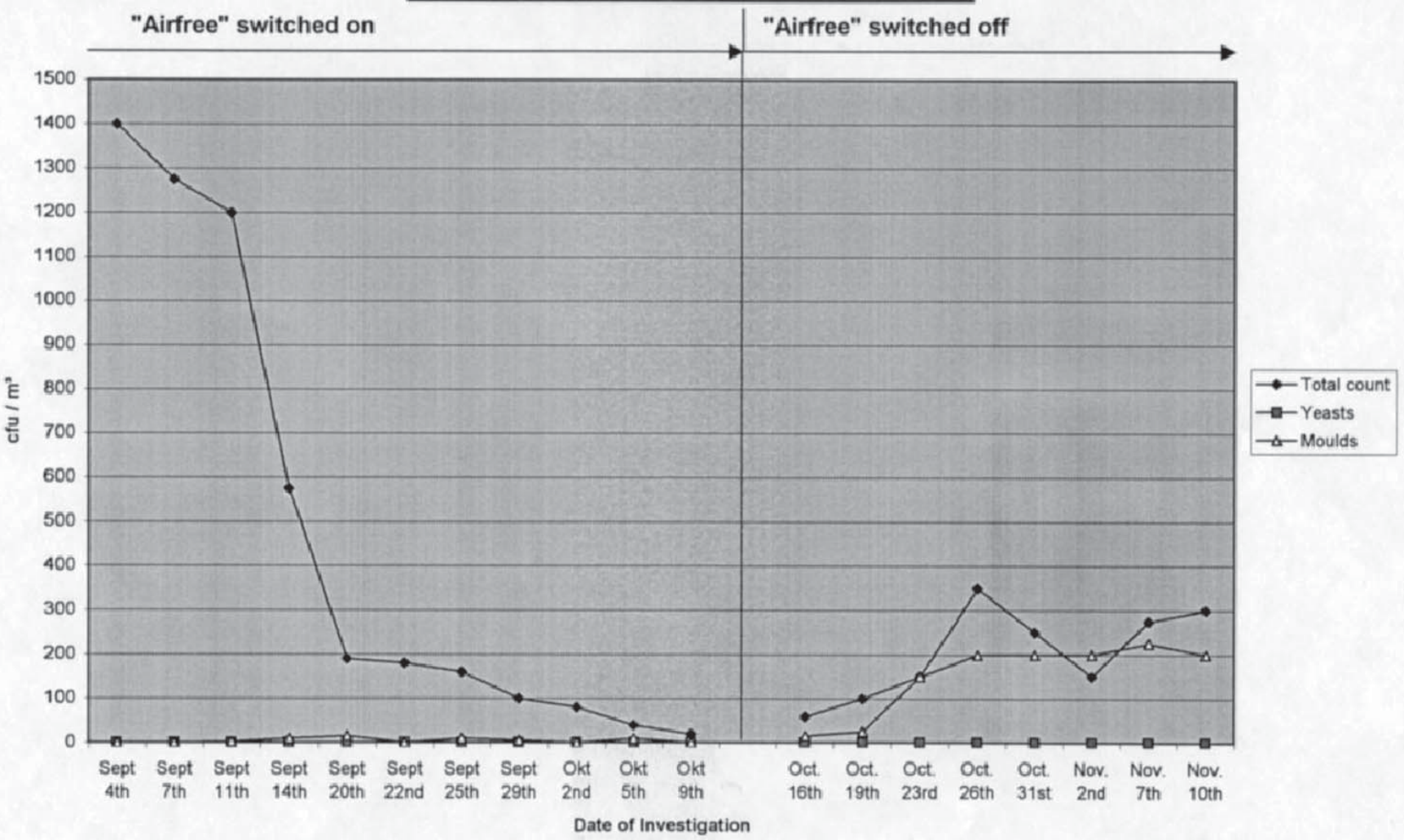
Test-Report M00-04990 / Room No. 11



N 103/6.000/0699/Ka

SGS NATEC Institut
für naturwissenschaftlich-technische Dienste GmbH

Test-Report M00-04990 / Room No. 11



TESTS

Insect R & D Limited
Cambridge/UK

Testing Airfree efficiency in reducing dust mite allergens (Derp1).

Reduction: 70,68% to 96% in Dust Mites Allergens (Derp1).

Insect R&D Limited

0845 4 300 300
www.insectresearch.com
info@insectresearch.com
Incorporating
Medical Entomology Centre

Report on the effectiveness of the Airfree air steriliser manufactured under license of US Patent 5874050 at reducing the levels of Der p 1 (A major house dust mite allergen) on allergen placed within it for varying lengths of time.

Phase 1

Report No. Air/Mit/All/1

Compiled by

Toby C Wilkinson

June 2005

This report consist of 7 numbered pages of which this is the first

Disclaimer

The results described in this report were generated *in vitro*. The samples tested were accepted in good faith that they were representative of the intended final formulation(s)/ product(s) and the test methods employed were used on the understanding that they were the most appropriate available at the time the tests were agreed. As such the results should be taken only as an indication of the potential for activity of the formulations or products under test. These results cannot be considered as confirmation that a formulation or product will work in a clinical or field application. Evidence for such activity can only be obtained from properly constructed and executed clinical or field trials.

Use of this report

This report may be used as part of a portfolio of documentation by the sponsoring organisation. It may be used as part of a submission for regulatory application or as a reference only as "Data on File" in any promotional material.The name of Insect Research & Development Limited, Cambridge, may only be used in advertising or other promotional material with the prior consent of the Directors of the company. It should be noted that Insect Research & Development Limited is an independent consultancy and contract research organisation.

Aim

The aim of these experiments was to assess the effectiveness of the Airfree device at reducing the levels of Der p 1 (A major house dust mite allergen) in allergen placed within it for varying lengths of time.

Materials and methods

House dust mite allergen, derived from colonies of the house dust mite *Dermatophagoides pteronyssinus*, maintained by Insect Research and Development ltd was placed into the centre of the incinerator for 1, 5 and 300 seconds using a probe. All of the experiments were conducted in a controlled climate chamber set to 25°C and 75% RH. The probe was constructed from straight metal wire measuring 120 mm with a diameter of 0.75 mm, a 5mm by 10 mm strip of autoclave tape was wrapped around the wire leaving an exposed surface of 2mm by 10mm. Approximately 0.001 grams of frozen culture containing high levels of allergen was placed onto this surface, calculations in the results section will take this variation into account. The incinerator was placed in the upright position and turned on for 24 hrs prior to the addition of the probes. The allergen was placed into the centre of the incinerator, through a small hole made in the grill at the bottom for 1,5 and 300 seconds (see figure 1), 3 replicates were conducted at each time interval and 3 control replicates were carried out at each time interval with the Aifree device switched off so the incinerator was at room temperature (25°C). The incinerator was 13 cm long so the tip of the probe was placed 7cm within it, in the central hole. The centre of the autoclave tap was inline with the centre of the incinerator.

After being placed in the incinerator the autoclave tape was gently removed from the wire and placed into a 25ml water tight container containing 5ml of dust extraction buffer (0.125M ammonium hydrogen carbonate buffer + 0.1% sodium azide). The container containing the allergen and dust extraction buffer was spun with a blood rotator for 1 hour. 1ml of liquid from each arena was then transferred to labelled Eppendorf tubes using a micro-pipette, and centrifuged at 6000rpm for 5 minutes. The supernatant liquid (0.2 ml) was removed from each Eppendorf tube and transferred to a new, labelled Eppendorf tube, after this the tubes were frozen until they were analysed for Der p 1.

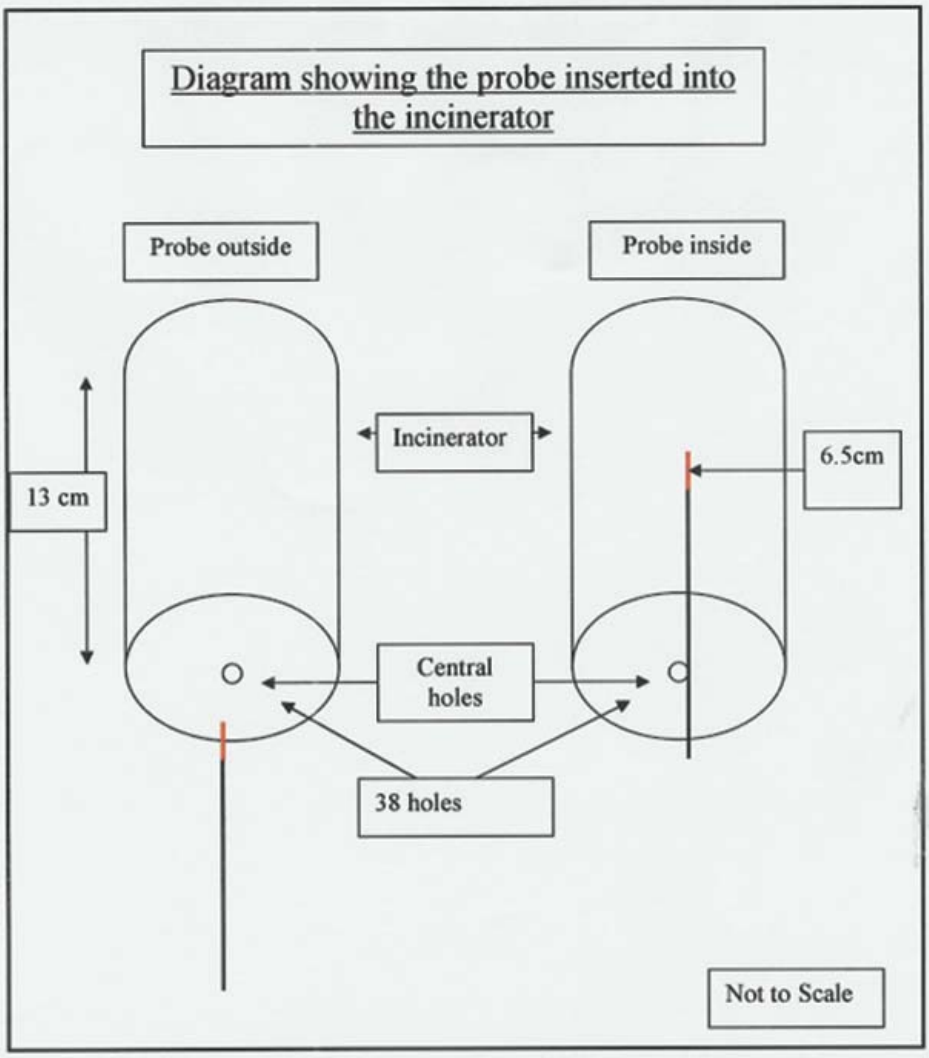


Fig 1: Diagram showing probe being inserted into the incinerator.

Results (corrected)

Exp/Control	Mean ng Der p 1	% Reduction
5 min exposure	6.82	97.95
5 min control	332.47	
5 second exposure	31.03	93.45
5 second control	473.47	
1 second exposure	169.66	70.60
1 second control	577	

Table 1: Results

Results and discussion

The results indicate that the Airfree device has the potential to control the airborne house dust mite allergen Der p 1 extremely well. After just one second, the time which air/ airborne allergens are thought to remain in the incinerator, the Airfree device was able to reduce the amount of the house dust mite allergen Der p 1 by an average (mean) of 70.6%. In the field the airborne allergen may be denatured even more as quite a lot of allergen was placed on the probe, some of the allergen on the probe may therefore have shielded the allergen beneath it from the heat. It was interesting to see that the longer the control samples were placed within the incubator the less allergen was detected on them, as the incubator was switched off it is likely that this reduction was caused by some of the allergen being rubbed off the probe. Longer exposure periods with the incinerator switched on resulted in higher % reductions in allergen concentrations when compared to the control, this indicates that repeated exposure to the incinerator would reduce the amount of allergen further, although more tests would need to be conducted to confirm this.

TESTS

SP Swedish National Testing and Research Institute

Testing Airfree efficiency indoor reducing ozone level.
Reduction: 26% in Ozone.

REPORT

C&M
Rua Mouzinho da Silveira 27, 5th floor
1250-166 Lisbon
PORTUGAL

Handläggare, enhet / *Handled by, department*
Lars Rosell, Chemistry and Materials Technology
+46 (0)33 16 51 71, lars.rosell@sp.se

Datum / *Date*	Beteckning / *Reference*	Sida / *Page*
2001-05-31	F1 10358	1 (1)

Measurements of ozone in the outlet of an AirFree air cleaner

Item tested and test objective

The test object was an AirFree air sterilizer, labelled 230 V, 50 Hz, 400 mA, 46 W and serial no 53002309. According the client the AirFree unit is manufactured under license of U.S. Patent 5,874,050. The unit arrived to SP on February 27, 2001. The objective was to check for any change of ozone concentration in the air when passing through the test item. The test was performed on May 29, 2001. The test results apply only for the item tested.

Test procedure

The test was carried out in a laboratory room at SP. The air cleaner was started two hours previous the ozone test. The ozone instrument used for measurements was a Dasibi UV-instrument, model 1003-PC, and newly calibrated. The background ozone level in the room was measured at the base of the Airfree unit and compared with concentrations at the air outlet on top of the unit. Ten readings were taken at both sampling points during 8 minutes respectively and the average for each point was calculated.

Results

The average ozone reading was 19.5 ppb at the inlet and 14.4 ppb at the outlet.

Summary

The ozone concentration was significantly lower (at 99 % certainty level) at the air outlet of the AirFree unit compared to the inlet. The reduction could, at the given test environment, be calculated to 26 %.

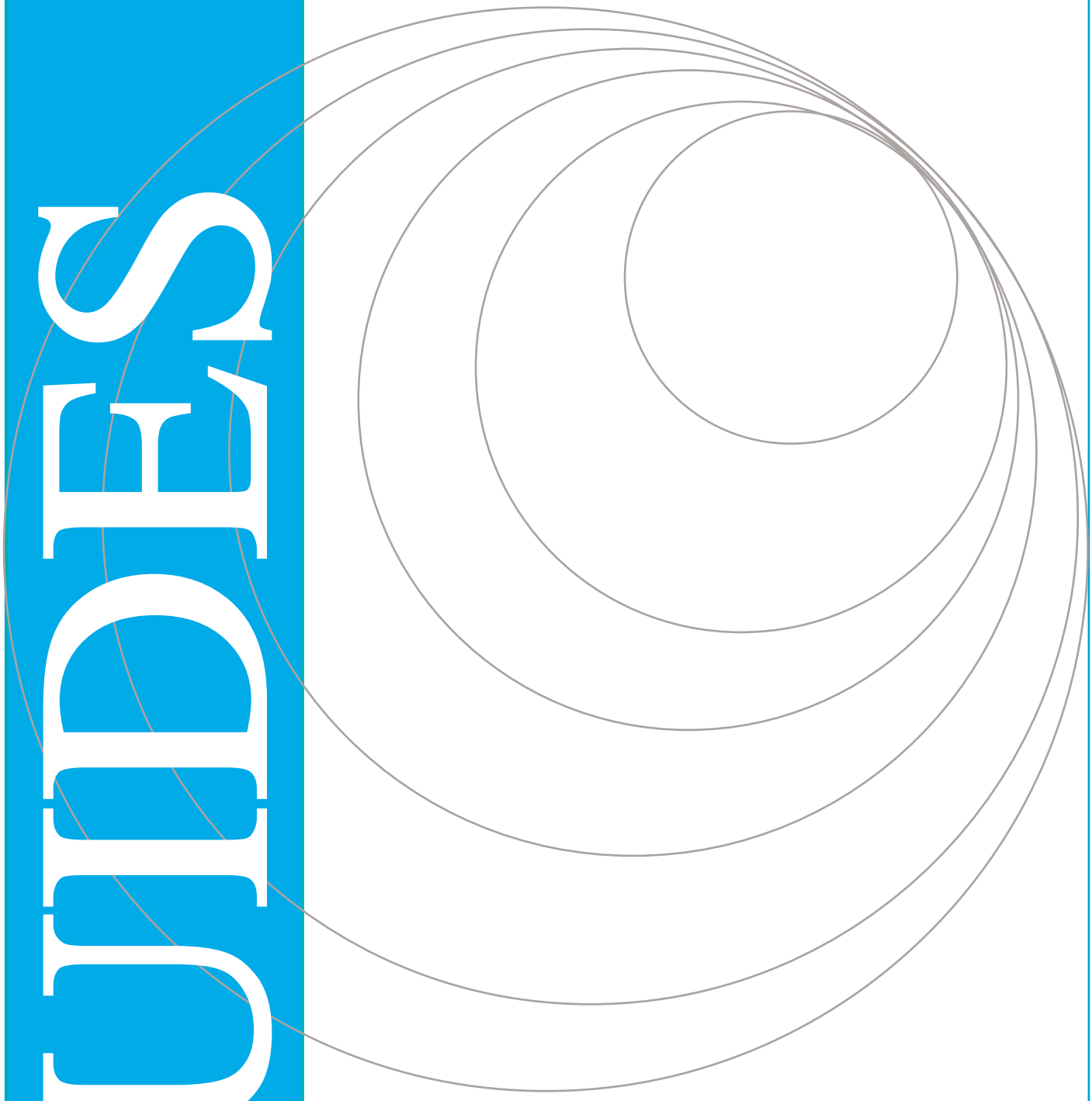
SP Swedish National Testing and Research Institute
Organic Analytical Chemistry

Conny Haraldsson
Technical Manager

Lars Rosell
Technical Officer

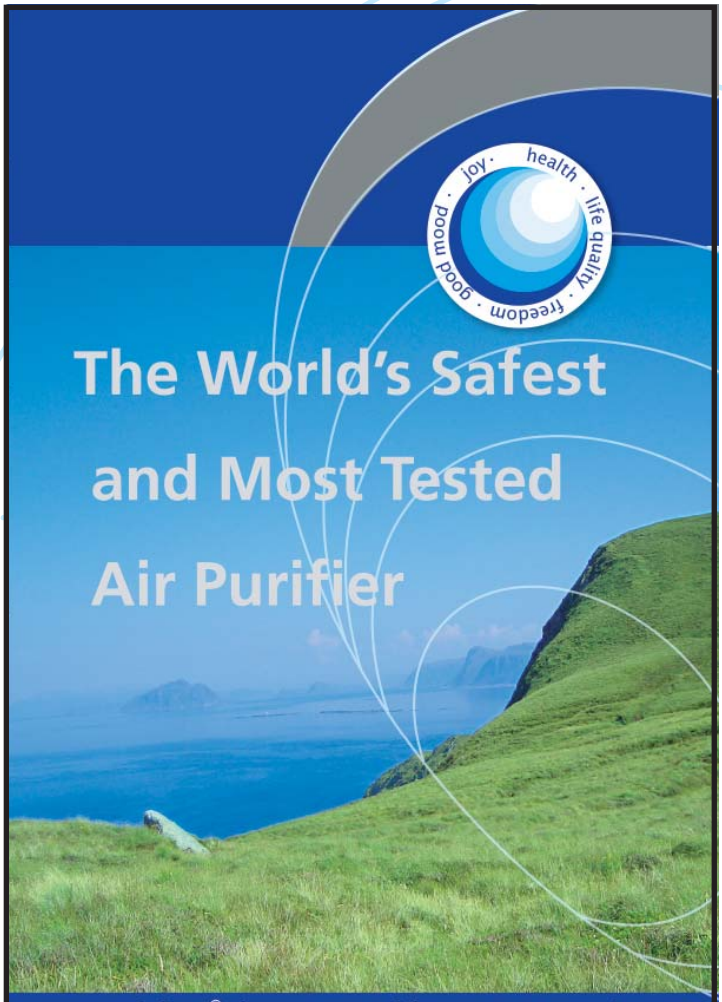
Detta dokument får endast återges i sin helhet, om inte SP i förväg skriftligen godkänt annat.
This document may not be reproduced other than in full, except with the prior written approval of SP.

GUIDES



Airfree®
PRODUCTS

General Guide



Airfree® destroys mold spores, organic allergens, bacteria, viruses and other airborne microorganisms

Patented worldwide

Sold in more than 30 countries

Airfree® PRODUCTS

The importance of the air we breathe

Airfree® : A new and efficient way of reducing indoor air contamination

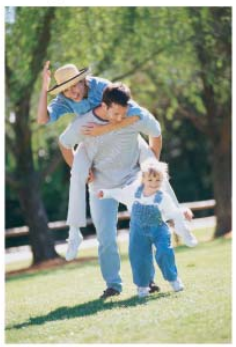
Currently human beings spend 90% of their time indoors either at home or work. According to the EPA, indoor air pollution can be up to 50 times greater than outdoor pollution.

Consequently, indoor air treatment is vital for healthy living. Being less exposed to allergy triggering sources and transmittable airborne diseases has countless health benefits.

Airfree® has been tested by numerous independent international institutions that have verified and confirmed its drastic airborne microorganism and ozone* reduction capacity.

Airfree® safely destroys: mold, virus, bacteria, dust mites allergens, airborne allergens and ozone.

*toxic gas considered an asthma and allergy trigger.



Airfree PRODUCTS

Airfree®
Patented Technology

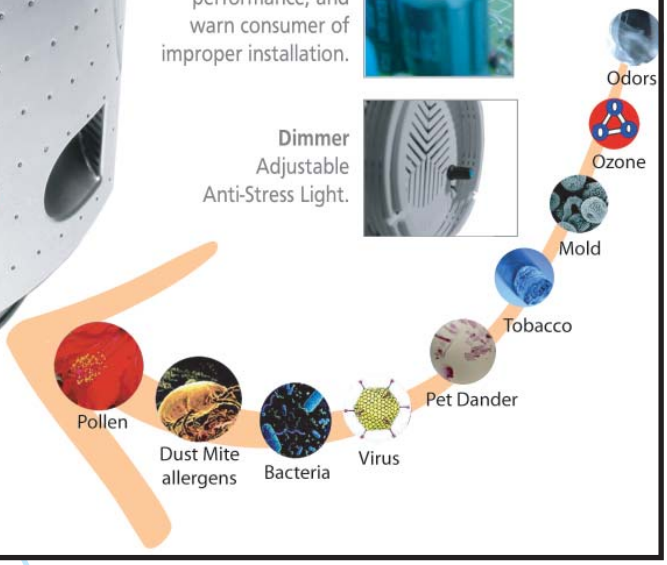
Purified Air

Sterilized Air Outlet
The purified air is released back into the environment.

Thermodynamic Sterilyzing System (TSS™)
99.99% of all microorganisms are destroyed at high temperature (400°F).

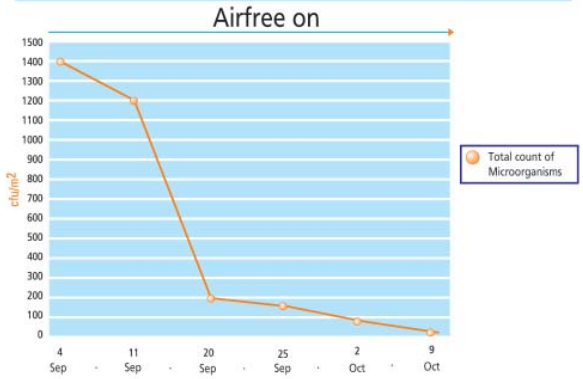
Newest and Safest Technology
State of the art electronics improve performance, and warn consumer of improper installation.

Dimmer
Adjustable Anti-Stress Light.



The World's Safest and Most Tested.

- Health
- Productivity
- Comfort
- Life quality
- Preservation
- Better Sleep



Test M00-4990 - Room 11 by SGS Natec - Hamburg, Germany

• Mold and Mildew:
Main cause of histoplasmosis and Rhinitis . Mold also triggers respiratory allergies. Airfree® destroys airborne mold spores.

• Ozone:
Toxic gas that can damage lung tissue, causes chest pain, shortness of breath, throat irritation and can also trigger asthma. Its long term toxic effect is still unknown.

• Dust Mites:
Fungus and mold reduction in the environment reduces fungus -dependent dust mite population.

• Dust mites allergens:
Independent Tests indicate that Airfree has the ability to control the dust mite allergens such as Derp1 extremely well.

• Organic Odors:
Some microorganisms produce this kind of odor. Airfree® drastically reduces them.

• Residual Tobacco Smell:
Lasting repulsive odor, causing pulmonary and throat irritation and potential health complications after smoking sessions.

• Viruses:
Airborne viruses are responsible for infectious diseases such as the flu, SARS and other serious illnesses.

• Bacteria
Responsible for many infectious diseases like meningitis, pneumonia and other major illnesses, are also destroyed by Airfree®.

Airfree PRODUCTS

Why Airfree®?

- Efficient! Airfree® has been tested in real working environments by credible ISO 17025 independent laboratories and universities in several countries. Airfree destroys microorganisms such as mold spores, bacteria, viruses, and dust mite allergens that pass through its patented Termodynamic Sterilizing System (TSS™), regardless of how hazardous or miniscule they might be.
- Faster performance! Microorganism reduction begins just 15 minutes after Airfree® is plugged in.
- Silent! No sound emission.
- Economic! Airfree TSS™ technology uses less electricity than a 50W light bulb and does not require replacement parts that cost hundreds of dollars a year.
- No filters or UV lamps to replace! Replacement parts for other air purifiers may cost over $200 a year.
- Easy to install and use! Just place Airfree® on the floor and plug it into the nearest electric outlet. No need for constant maintenance or special cleaning.
- Safe! No need to touch or change dirty and contaminated filters. Electrical safety is assured by CE seal of approval.
- Ozone and Ion free! Airfree TSS™ technology is ozone and ion free and has no hazardous emission. Airfree® reduces toxic and corrosive ozone, which according to the EPA may trigger asthma and destroy lung tissue.
- Durable! Airfree® has no moving parts, therefore, resulting in practically no wear and tear and a rugid durability.
- Exclusive Clean Technology! Airfree® uses heat alone to incinerate airborne microorganisms. No fiber glass filters, triclosan coated paper or any type of material harmful to you or the environment when disposed of. Airfree® is the only technology that reduces ozone while simultaneously destroying microorganisms.
- Anti-Stress Light! The exclusive Airfree dimmer controlled anti-stress light. Ideal for children's rooms it can also be used as a night light or switched off completely.

Airfree® PRODUCTS

For more in depth information, please visit our site:
www.airfree.com

P1000

- **Capacity:** 450 sq ft/42m²
- **Dimensions:**
  8.4"(diam) X 10.4"(height)
  21.5cm X 26.5cm
- **Electric consumption:** 45W
- **Warranty: 2 years**

Platinum 2000

- **Capacity:** 550 sq ft/51m²
- **Dimensions:**
  8.4"(diam) X 10.4"(height)
  21.5cm X 26.5cm
- **Electric consumption:** 48W
- **Warranty: 2 years**

CE Certificado ISO 9002

Healthy
Environment

Everything for Allergics

AirFree
AIR PURIFIERS

Allergic Guide

The healthy way to treat allergies

Do you want to know if you are allergic or have an allergy related disease? Just answer the questions below[1]:

1) Have you noticed in the past 6 months symptoms such as: sneezing, nasal and sinus obstruction, or a runny nose as if you had a cold?
2) During these 6 months, have your nasal symptoms been followed by itchy and watery eyes?
3) For the past 12 months, have you had nasal secretions followed by jawbone and frontal headache?
4) Have you ever had trouble breathing during the past 12 months despite not having a cold?
5) Have you ever experienced breathlessness with an associated wheezing or whistling noise when you breathe?

In the event you have answered "yes" to questions 1 and 2, you may have respiratory symptoms[1] associated with allergic rhinitis[2];

In the case that you answered "yes" to question 3, you may be a sinusitis carrier(?see comments below);

If you answered "yes" to questions 4 and 5, you may be asthmatic. (A carrier is someone who could infect another with a contagious illness. Are asthma and these other illnesses contagious?)

This questionnaire is simply intended to indicate general symptoms and conditions and under no circumstance substitutes for medical consultation.

So do I have an allergy or flu?

Some symptoms such as obstructed nose, sneezing, itchy eyes, nose and throat, do not just originate from allergies, as they can also be a sign of flu. The flu is caused by viruses, and the symptoms usually disappear after a few days, different from the allergies. It is very common to see allergic patients that before identifying their disease, believed that they had a "constant flu". Allergic reactions are triggered when a person is exposed to certain proteins.(The information that follows needs to be revised since it is unclear in meaning). Other substances, such as strong odors, toxic ozone, and sometimes just cold air, can be so irritating that they instigate the inflammatory process. Toxic ozone is not only present in the atmospheric layer protecting Earth from the UV rays but also in the environment in which we live. In this case, toxic ozone can cause irreversible damage to the lungs, besides causing an asthmatic attack[9].

Main airborne allergens in the air

Dust Mite allergens. House dust mites are usually found in mattresses and couches. Their main food sources are fungus and human skin flakes.
Dust mite allergens are found in their skeletons and especially in their fecal matter. Because they are so light-weight, these allergens are ejected into the air by any movement in the environment.

Mold. Mold is a kind of fungus that reproduces by ejecting spores into the air. Invisible to the naked eye, when inhaled, these spores may be responsible for triggering allergic reactions and in some cases, even infections.

Pet Dander. Allergy causing substances are also found in the oil glands, skin and saliva of pets. These microscopic substances are proteins that may stay airborne for hours or even days. In addition, they are easily transported between environments, consequently, they can also be found in places where there are no animals present. Many researches relate asthmatic crisis to the presence of pet dander in homes.

Pollen Allergens. Pollen may cause seasonal rhinitis that occurs in a specific period of the year. Usually it may appear in Springtime, when flowers bloom. The pollen is extremely light weighted and disperses itself through the air. When inhaled it may deposit itself on the nasal mucous the existing proteins of the grains may trigger allergic reactions5

In other words, allergic rhinitis is characterized by nasal inflammation after exposure to the allergens[2]. On the other hand, asthma is a chronic inflammatory disease that leads to the obstruction of the respiratory airways[6]. Studies demonstrate that the allergic rhinitis usually precedes asthma and that about 38% of the people who have rhinitis also suffer from asthma[7].
In the case of sinusitis, it may be said that it is a disease characterized by inflammation of the nasal mucus, which leads to obstruction, pain and a sensation of pressure on the cheeks. It may also be the result of infections caused by viruses, bacterial infections, or allergic reactions[8].

Background Knowledge

Did you know that some dust mite and fungus are intimately related?

- Laboratory tests suggest that some dust mites species cannot survive in the absence of fungus[10]
- Fungus, in addition to being a food source for dust mites, are also responsible for pre-digesting human skin flakes [11].

How to improve the quality of life of an person who is allergic.

Allergies and their irritating symptoms are responsible for a reduction the quality of life and even loss of productivity at school and work[2]. The main way to avoid allergies is to prevent the inhalation of allergens. For that to occur, two measures need to be taken: to treat contaminated air and to fight sources of contamination.

Some important tips:

1- When washing bed sheets, try to use hot water (131ºF) once a week, in order to eliminate dust mites.
2- If possible, use anti-dust mite covers on mattresses and pillows and avoid feather pillows and comforters.
3- In there is presence of mildew, use a 1 part of chlorine for each 4 parts of water solution for cleaning. Do not mix chlorine based products with ammonia based products. The mixture produces toxic gases.
4- Clean up all mildew stains that you find. If the material is too porous and cannot be totally cleaned, throw it away.
5- Wait until surfaces are completely dry before placing objects on them.
6- Use exhaust fans in kitchens and bathrooms. This measure will decrease humidity levels and reduces the spread of germs.(Note that you have two different fonts starting after #6)
7- Ventilate closed spaces such as attics. In fact, the relative humidity of any environment should always be kept below 50%, because fungus, bacteria and dust mites will proliferate quickly in high levels of humidity.
8- Clean the air conditioning system and dehumidifiers on a regular basis, because these devices accumulate humidity and dirt inside, promoting fungus and bacteria growth.
9- When water damage occurs as during a flood, the contaminated materials should be cleaned and dried within 24 hours.
10- Do not vacuum or change bed sheets in the presence of individuals who are allergic since the quantity of dust mites, fungus and bacteria in the air increases during cleaning.
11- Allergic people should avoid carpets as vacuum cleaners cannot remove all dust mites and fungus from its fabric.
12- Use Airfree air purifier to maintain an excellent air quality level in the environment.

Why Airfree®

Airfree quietly, continuously, and efficiently purifies the air that is the main means of transmitting contamination to an allergic person.
Airfree is a high efficiency air purifier that reduces up to 99% of airborne micro-organisms and allergens, in addition to reducing 26% of the amount of Ozone, duly confirmed by many independent test reports performed by universities, certified laboratories, and institutions in several countries. For further information regarding Airfree, and to see copies of full test reports please access www.airfree.com.

Airfree® Products

Efficient: Airfree is tested in real working environments with people in them by credible ISO 17025 independent laboratories and universities in several countries.Airfree destroys any microorganism such as mold spores, bacteria, viruses, and dust mite allergens when passing through its patented high efficiency thermodynamic sterilizing system known as TSS™ technology regardless of how hazardous and small they might be.

Faster performance: Microorganisms reduction starts in 15 minutes.

Silent: No sound emission.

Exclusive: Airfree uses only heat TSS™ technology to destroy and incinerate airborne microorganisms. No fiber glass filters, triclosan coated paper or any type of material that can be harmful to

OzoneReduction: no other airpurifying device matches Airfree's exclusive TSS™ technology which both reduces ozone, while simultaneously destroying microorganisms.

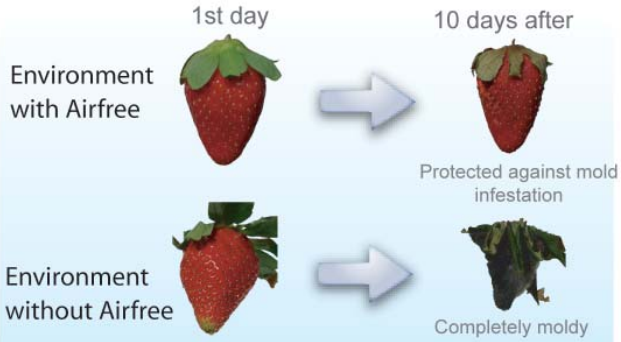
Economic: Airfree's electric consumption is lower that a 50W light bulb. No replacement parts required such as filters that may cost hundreds of dollars a year.

Easy Installation: Just place Airfree on the floor and plug it into the nearest electric outlet. No need for maintenance or special cleaning.

Bibliographical References:

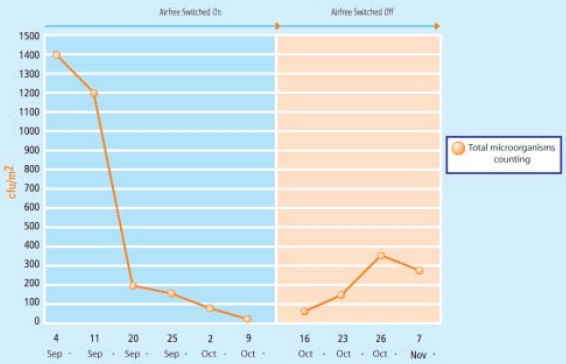
1- Graudenz GS, Oliveira CH, Tribess A, Mendes Jr C, Latorre MRDO, Kalil J. Association of air-conditioning with respiratory symptoms in office workers in tropical climate. Indoor Air 2005; 15: 62–66.
2- Walls RS, Heddle RJ, Tang ML, Basger BJ, Solley GO, Yeo GT. Optimising the management of allergic rhinitis: an Australian perspective. Med J Aust. 2005 Jan 3;182(1):28-33.
3- Peter B. Boggs. Indoor Allergen Control Measures: A Practical Summary. Lesson 17, Volume 16. http://www.chestnet.org/education/online/abim/chart/vol16/lesson17/print.php.
4- Custovic A, Simpson A, Chapman MD, Woodcock A. Allergen avoidance in the treatment of asthma and atopic disorders. Thorax 1998;53:63–72.
5- Esteves, PC, Rosário Filho NA, Tripia SG, Caleffe LG. Prevalence of perenial and seasonal allergic rhinits with atopic sensitization to Dermatophagoides pteronyssinus and Lolium multiflorum in schoolchildren and adults in Curitiba. Revista Brasileira de Alergia e Imunopatologia. 2000; 23(6):249-259.
6- Capítulo I - definição, epidemiologia, patologia e patogenia. J. Pneumologia, jun. 2002, vol.28 supl.1, p.4-5.
7- Corren J. Allergic rhinitis and asthma: how important is the link? J Allergy Clin Immunol. 1997 Feb;99(2):S781-6.
8- Evans KL. Diagnosis and management of sinusitis. BMJ. 1994 Nov 26;309(6966):1415-22.
9- U.S. Environmental Protection Agency. Ozone. http://www.epa.gov/epahome/ozone.htm
10- Hay DB, Hart BJ, Douglas AE. Effects of the fungus Aspergillus penicillioides on the house dust mite Dermatophagoides pteronyssinus: an experimental re-evaluation. Med Vet Entomol. 1993 Jul;7(3):271-4
11- .BAGGIO, D. CROCE, J. ÁCAROS CONTAMINANTES DE AMBIENTES E CAUSADORES DE DOENÇAS ALÉRGICAS NO HOMEM

See the strawberries 10 day test*:



*test made in two separated closed chambers

Efficiency Test: microorganism reduction



Test realized by SGS Natec - Germany - Test M00-4990
Independent Laboratory ISO 17025

See the complete list of test reports at:
www.airfree.com

This guide had Cristiane Minussi's collaboration, USP biologist professional responsible for the microbiological nature information.

Airfree® AIR PURIFIERS

Babies & pregnancy Guide

Taking care of your baby's health

The care for your baby starts in the mom's belly.

A baby's birth is the reason for many anxieties. The future mom usually asks herself about what measures she needs to take in order to provide a healthier development for her baby. In this guide, we will show you what to do to prevent respiratory allergies from appearing in babies and pregnant women.

Genetic factors are responsible for one's predisposition to contract allergies, although environmental factors are triggers, in other words, they are responsible for causing sensitivity and inflammatory reactions. In the environment we can find allergy causing substances such as mold, dust mites, pet dander, among others. These substances are known as allergens.

When inhaled, some substances can be transported through the placenta, like the cigarette's toxins and some kinds of airborne allergens (allergens in the air). When the fetus has contact with these substances it may occur an intrauterine sensitivity, leading to an initial allergic reaction. For that reason it is important to maintain the air quality as pure as possible, at least in the places where the pregnant woman stays most of the time.

Main Airborne Spores

Dust mite allergens are substances found in dust mite excrements and skeleton. Because they are so light weighted, any movement will throw them to the air. The inhalation of these substances is the main cause of allergic sensitivity in several countries.

Mold is a kind of fungus. Fungus throw in the air little reproductive structures named spores.

Pet danders are allergy causing substances and are found mostly in pet's oil glands, skin and saliva. They are small sized proteins that might stay in the air for hours or even days. Besides, they are easily transported between environments, this way they can be found in places where there are no animals. Many researches relate asthmatic crisis to the presence of pet dander in the residences.

Pollen may cause a kind of rhinitis, named seasonal, which occurs in a determined period of the year. Usually it may appear during the Spring, when the flowers bloom. The pollen is extremely light weighted and disperses itself through the air. When inhaled it stays in the lungs and set off allergic reactions.

Why does the air quality should be treated?

Many researches demonstrate that airborne spores are related to allergies.

A research realized in England verified that it is possible to reduce allergic-respiratory symptoms in babies with predisposition to asthma or allergies. The reduction of the symptoms is due to the reduction of the amount of the airborne allergens that the baby is exposed to in the environment. This way, it is clear that an environment containing less allergy trigger substances will inhibit the development of allergies.

Researches with univitelines twins show that there are a few occasions when only one of them becomes asthmatic. This is one of the reasons that led the scientists to believe that the environmental factors, and not only the genetic, are responsible for the development of the disease. Another research realized with babies under 1 year old demonstrated that asthmatic crisis are directly related to the exposure to dust mite allergens: the more it is the exposure the more are the chances of developing the disease and initiate the crisis sooner.

The discomfort caused by nighttime allergies may be so bothering that it may interfere in the baby's sleep. The sleep time is not only important for resting but to assimilate the cerebral development as well, besides, during this period, the growth hormones are liberated more intensely.

Keeping a healthy environment for the baby

- If you notice the presence of mold, immediately clean the surface, disposing porous materials that have been affected;
- Sheets and blankets can be washed in hot water (131°F) each 7 days, for effective mold elimination;
- Do not use feather pillows or blankets;
- Avoid furniture that can not be cleaned easily and accumulate dust;
- Avoid carpets;
- Avoid teddy bears on the baby's bed;
- Avoid internal humidity accumulation, by leaving the windows open daily, for around 30 minutes;
- Use the high efficiency "Airfree" air purifier to keep the air quality ideal.

Air quality is a health issue.

Information about Airfree® air purifier

Airfree has its effectiveness proven for the reduction of until 99% of the microorganisms and allergens present in the air. Other than its effectiveness, Airfree presents an awarded design and a relaxing adjustable light, perfect for your baby's room.

To know more about the device and to visualize the tests from independent laboratories, access the website: www.airfree.com

Airfree® Products

Efficient: Airfree is tested in real working environments with people in them by credible ISO 17025 independent laboratories and universities in several countries.Airfree destroys any microorganism such as mold spores, bacteria, viruses, and dust mite allergens when passing through its patented high efficiency thermodynamic sterilizing system known as TSS™ technology regardless of how hazardous and small they might be.

Faster performance: Microorganisms reduction starts in 15 minutes.

Silent: No sound emission.

Exclusive: Airfree uses just heat TSS™ technology to destroy and incinerate airborne microorganisms. No fiber glass filters, triclosan coated paper or any kind of material that can be harmful to those operating or wasting it.

Ozone Reduction: Airfree exclusive TSS™ technology is the only one reducing ozone while destroying microorganisms.

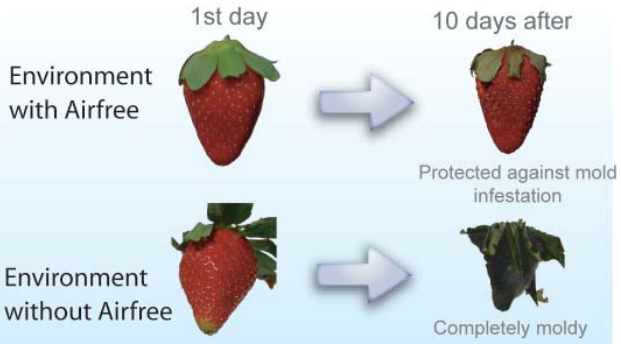
Economic: Airfree model electric consumption is lower that a 50W light bulb. No replacement parts required like filters that may cost hundreds of dollars a year.

Easy Installation: Just place Airfree on the floor and plug it into the nearest electric outlet. No need for maintenance or special cleaning.

Bibliographical References

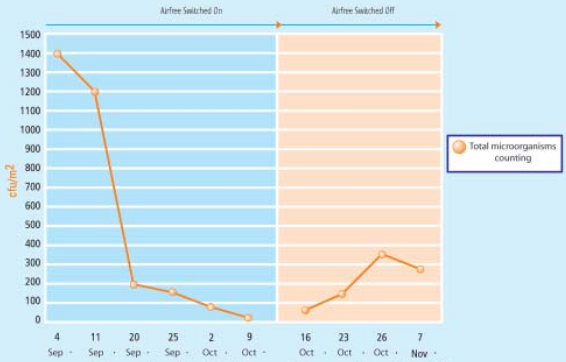
1- Szepfalusi Z, Loibichler C, Pichler J, Reisenberger K, Ebner C, Urbanek R. Direct evidence for transplacental allergen transfer. Pediatr Res. 2000 Sep;48(3):404-7.
2- Piccinni MP, Mecacci F, Sampognaro S, Manetti R, Parronchi P, Maggi E, Romagnani S. Aeroallergen sensitization can occur during fetal life. Int Arch Allergy Immunol. 1993;102(3):301-3.
3- Miller RL, Chew GL, Bell CA, Biedermann SA, Aggarwal M, Kinney PL, Tsai WY, Whyatt RM, Perera FP, Ford JG. Prenatal exposure, maternal sensitization, and sensitization in utero to indoor allergens in an inner-city cohort. Am J Respir Crit Care Med. 2001 Sep 15;164(6):995-1001.
4- Prescott SL, Macaubas C, Holt BJ, Smallacombe TB, Loh R, Sly PD, Holt PG. Transplacental priming of the human immune system to environmental allergens: universal skewing of initial T cell responses toward the Th2 cytokine profile. J Immunol. 1998 May 15;160(10):4730-7.
5- Custovic A, Simpson BM, Simpson A, Kissen P, Woodcock A; NAC Manchester Asthma and Allergy Study Group. Effect of environmental manipulation in pregnancy and early life on respiratory symptoms and atopy during first year of life: a randomised trial. Lancet. 2001 Jul 21;358(9277):188-93.
6- Asthma facts. Environmental Protection Agency (EPA), Indoor Environments Division. United States, may 2004.
7- Hospital Universitário Alzira Velano. No dia mundial de combate à asma e alergias, médicos e acadêmicos alertam sobre o perigo das doenças. http://www.alziravelano.com.br/jornal/index1.htm.
8- Marshal G.D. Internal and External Environmental Influences in Allergic Diseases. JAOA , Vol 104 , No 5_suppl , May 2004 , 1-6.
9- Koppelman GH, Los H, Postma DS. Genetic and environment in asthma: the answer of twin studies. Eur Respir J. 1999 Jan;13(1):2-4.
10- Sporik R, Holgate ST, Platts-Mills TA, Cogswell JJ. Exposure to house-dust mite allergen (Der p I) and the development of asthma in childhood. A prospective study. N Engl J Med. 1990 Aug 23;323(8):502-7.
11- Holditch-Davis D. Sleeping Behaviour of Preterm Infants and Its Impact on Psychosocial Child Development. Encyclopedia on Early Childhood Development. Jan 7., 2004.
12- Richard H. K, Paul Saenger. Sleep and Growth Hormone Deficiency. TNF lymphokines.
13- Peter B. Boggs. Indoor Allergen Control Measures: A Practical Summary. Lesson 17, Volume 16. http://www.chestnet.org/education/online/abim/chart/vol16/lesson17/print.php.
14- Custovic A, Simpson A, Chapman MD, Woodcock A. Allergen avoidance in the treatment of asthma and atopic disorders. Thorax 1998;53:63–72.
15-Esteves, PC, Rosário Filho NA, Tripia SG, Caleffe LG. Prevalence of perenial and seasonal allergic rhinits with atopic sensitization to Dermatophagoides pteronyssinus and Lolium multiflorum in schoolchildren and adults in Curitiba. Revista Brasileira de Alergia e Imunopatologia. 2000; 23(6):249-259.

See the strawberries 10 day test*:



*test made in two separated closed chambers

Efficiency Test: microorganism reduction



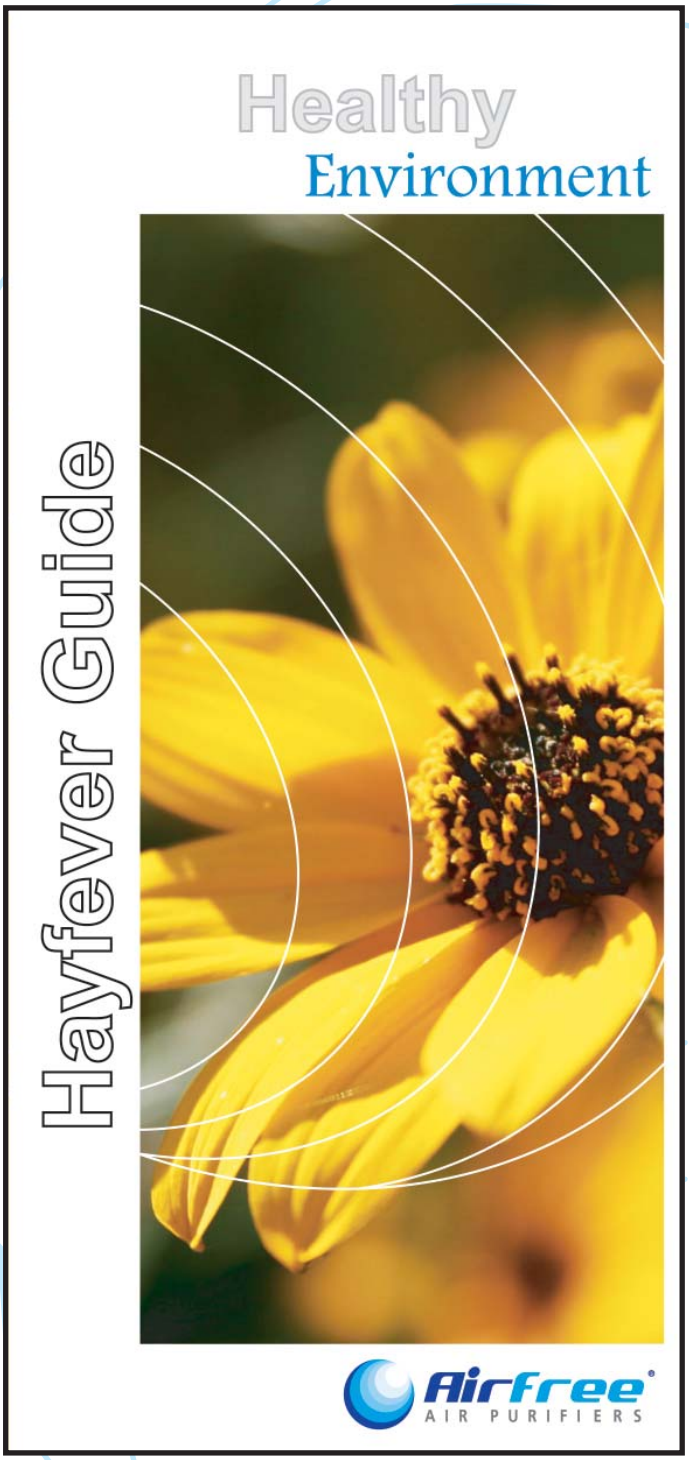
Test realized by SGS Natec - Germany - Test M00-4990
Independent Laboratory ISO 17025

See the complete list of test reports at:
www.airfree.com

This guide had Cristiane Minussi's collaboration, USP biologist professional responsible for the microbiological nature information.

Airfree® AIR PURIFIERS

Hayfever Guide



Hayfever under control

Rhinitis, the most common type of respiratory allergies, affects 10 to 25% of the world population[1]. The symptoms include nasal obstruction, nasal discharge, sneezing (often more than 20 times in sequence), itching in the nose, throat and eyes[1,2].

There are two types of rhinitis: perennial and seasonal[3]. The perennial is deflagrated by different environment allergens while the seasonal is associated to allergens in special seasons of the year.

Hay Fever affects 15 to 20 % of the population in Britain being a seasonal rhinitis triggered by pollens[2,3,4]. Therefore, it is more frequent in the spring (march to may), when plants blossom. There are plants like perennial rye and timothy grass (very common in England) that release pollens in different seasons, in that case, symptom peak occurs during June and July[2].

Pollens are extremely lightweight and disperse trough the air and when inhaled it deposits in the mucous provoking inflammatory allergic reactions. The warm, sunny, dry, and windy days are the worst days for the allergic to pollen because pollen spores are more easily spread.

Hay Fever is prevalent in North Hemisphere5 countries and it has been increasing over the past two decades[6]. That is in part due to the high emission levels of nitrogen dioxide, and ozone from vehicles in the industrialized countries. Exposure to air pollution and pollen exacerbates the symptoms of Hay Fever[2,7].

Quality of Life

Besides being uncomfortable rhinitis symptoms affect the quality of life of patients. Amid several symptoms the most common are:

Nose symptoms

- Sneezing
- Runny nose
- Blocked nose
- Nose, throat, and deep ear itching
- Headache due to sinusitis caused by swelling

Eye symptoms

- Watering
- Redness
- Itching
- Gritty feeling
- Swelling of the white portion

Chest symptoms

- Wheezing or tightness feeling. In fact those are asthma symptoms and should be treated as such

In order to minimize symptoms and allergic crisis, medicines are necessary. Some medicines are quite expensive and bring unpleasant side effects like making people sleepy and tired, and may also have a dangerous effect on driving and a poor concentration effect in school, at work and other activities.

In 1997, the Health System in the United States of America spent about USD 7.9 billions just with rhinitis.

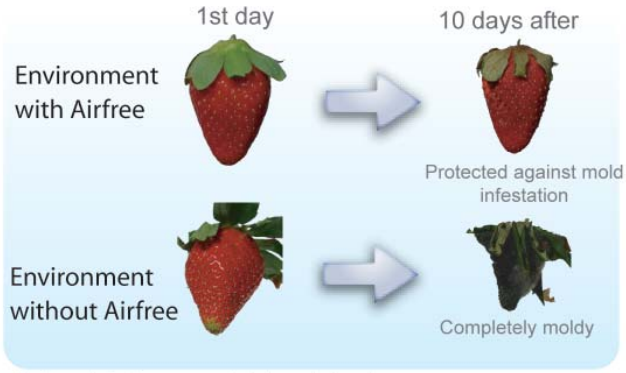
Preventing allergic crisis is far better than taking medicines therefore allergic people should avoid whenever possible contact with pollens.

How to avoid contact with pollen?

Mainly in spring time, some preventive measures should be taken:

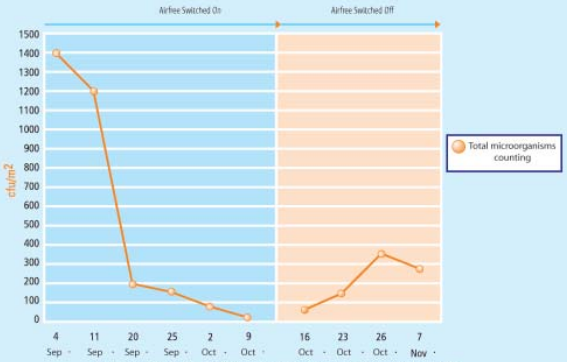
- Maintain car windows and windows at home closed to avoid pollens from outside to get in.
- Use glasses or sunglasses to partially avoid direct contact with eyes;
- Avoid open areas with lawns mainly at dawn and at night (periods with more pollen dispersion);
- Use pollen filters in cars;
- Do not cut grass;
- Always clean with an humid cloth furniture where pollens most commonly accumulate

See the strawberries 10 day test*:



*test made in two separated closed chambers

Efficiency Test: microorganism reduction



Test realized by SGS Natec - Germany - Test M00-4990
Independent Laboratory ISO 17025

See the complete list of test reports at:
www.airfree.com

All the microbiological informations herein contained is reviewed by Cristiane Minussi, biologist from University of São Paulo.

Airfree® AIR PURIFIERS

Airfree® Role

On top of those measures, in order to control allergies, it is essential that remaining pollen airborne particles be destroyed.

Airfree silently and efficiently incinerates airborne organic particles like pollens. Pollens are essentially made of protein and because of that, when submitted to high temperatures suffer a denaturizing process resulting in alteration of its original form and consequently being destroyed.

Airfree® Products

Efficient: Airfree is tested in real working environments with people in them by credible ISO 17025 independent laboratories and universities in several countries.Airfree destroys any microorganism such as mold spores, bacteria, viruses, and dust mite allergens when passing through its patented high efficiency thermodynamic sterilizing system known as TSS™ technology regardless of how hazardous and small they might be.

Faster performance: Microorganisms reduction starts in 15 minutes.

Silent: No sound emission.

Exclusive: Airfree uses just heat TSS™ technology to destroy and incinerate airborne microorganisms. No fiber glass filters, triclosan coated paper or any kind of material that can be harmful to those operating or wasting it.

Ozone Reduction: Airfree exclusive TSS™ technology is the only one reducing ozone while destroying microorganisms.

Economic: Airfree model electric consumption is lower that a 50W light bulb. No replacement parts required like filters that may cost hundreds of dollars a year.

Easy Installation: Just place Airfree on the floor and plug it into the nearest electric outlet. No need for maintenance or special cleaning.

Bibliographical References

1- Ferreira de Melo J, 2003. Rinite alérgica. Sociedade Brasileira de Alergia e Imunopatologia. http://www.sbai.org.br/publico2.htm
2- DurhanS, 1998. Summer hay fever. Clinical review. ABC of allergies, BMJ 316:843.
3- Esteves PC, Rosário Filho NA, Tripia SG, Caleffe LG, 2000. Prevalence of Perennial and Seasonal Allergic Rhinitis with Atopic Sensitization to Dermatophagoides pteronyssinus and Lolium multiflorum in Schoolchildren and adults in Curitiba. Rev Bras Alerg e Imuno, 23(6):249-259.
4- Viera F, 2—3. Polinose. Sociedade Brasileira de Alergia e Imunopatologia. http://www.sbai.org.br/publico4.htm
5- Abhi Parikh & Glenis K.Scadding, ,1997. Fortnightly review:seasonal allergic rhinitis. BMJ 314:1392
6- International Consensus Report on the Diagnosis and Management of Rhinitis, Allergy, ,1994, 49:5-34.
7- D'Amato G, Liccardi G, D'Amato M, Cazzola M, 2002. Outdoor air pollution, climatic changes and allergic bronchial asthma. Eur Respir J. Sep;20(3):763-76.
-All the microbiological information contained herein was reviewed by Dr. Cristiane Minussi, biologist from the University of Sao Paulo.

Hospital Guide

Healthier Hospital Environment

Safer Hospitals

Airfree AIR PURIFIERS

Hospital Indoor Air Quality
A Patient's Death Threat

The Hospital acquired infection scenario

Studies on hospital acquired infections began more than 150 years ago with Ignaz Semmelweis[1] and Florence Nightingale[2] and contributed to the advance of microbiologic and prophylactic actions in hospital enviroments. Despite the increase of asepsis practices, hospital infections are still considered a public health concern.

Hospital indoor air, a micro-organism contamination mean

Many studies[6,7,8] show that bio-aerosols (micro-organism conglomerates in suspension in the air) play an important role on the acquisition of infections being calculated as responsible for 10 to 20% of those cases[6].

The pathogens can be sprayed in many ways, via natural or forced ventilation system, water spray, skin scales released by patients and medical staff, coughing and sneezing[6]. Studies also show that surgical staff members can liberate between 1,500 to 50,000 bacteria per minute[9] and those pathogens may stay in suspension in the air for long periods of time. Studies reveal that 80 to 90% of all surgical wound infections are related to bad air quality and that cleaner air translates into in lower infection risk.

To prevent is better than to remedy

Hospital infections not only result in high financial cost but also in high number of lost lives. Therefore, better than the clinical treatment itself, the prevention of hospital infections is the best strategy as being cheaper and more effective.

The annual cost of treatment and hospitalization in England accounts for £1bn. According to the NAO (National Audit Office) 2000 report, the NHS could have saved £150m if preventive actions involving hospital hygiene and infection control had been taken.

Some important pathogens

Staphylococcus

"Staphylococus aureus" is the most common bacteria in hospital infections across the world[9] and are especially linked to surgical wound infections[10] that represent 11% of all nosocomial infections in England.

Other bacterial pathogens have high relevance in airborne transmitted diseases and are well studied like the "Streptococcus spp" and "Pseudomonas aeruginosa". Airborne pathogens are commonly related to respiratory tract infections which correspond to 23% of all hospital infections in England.

Aspergillus

"Aspergillus spp" is the most common fungus acquired trough air transmission in hospitals.

The "conidius propagulus" small size allows it to be in suspension in the air for long periods of time, remaining viable for months, even in low humidity places.[13] Studies estimate that 75% of the Invasive "Aspergillosis" cases result in death, especially due to the difficulty in diagnosing it. The daily therapy cost is extremely high over £701, resulting in an average therapy cost of £ 9.814(*) per patient. The therapy cost of just one invasive "Aspergillosis" patient is approximately equivalent to 60 Airfree units

*considering a 70 kg patient. Approximate cost of AWP (of Lamb) is US$188 per 50 mg vial. Typical dose is 5.0 mg/kg/day. Estimated daily cost per patient US$1,316.

Airfree® proven efficiency

Airfree air purifier is proven to drastically reduce the airborne microbial charge.

In many microbiologic tests in real life conditions performed by ISO 17025 certified independent laboratories, Airfree airborne bacterial and fungal charge reduction in the environment is close to 90%.

Airfree reduces toxic Ozone as well.

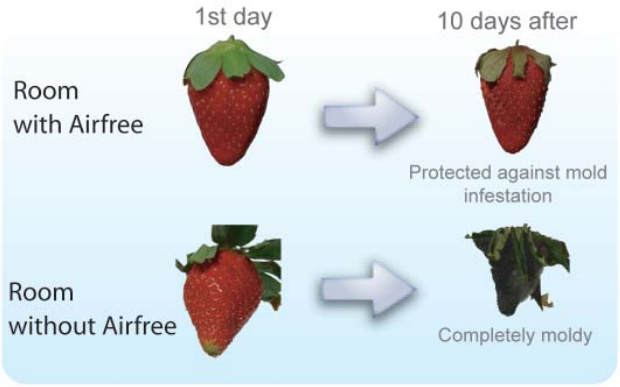
The extraordinary efficiency of patented Airfree technology combines excellent thermo dynamics in conjunction with the high efficiency of its ceramic core that captures and incinerates airborne microorganisms at temperatures around 400 F. In fact, just 105.8F is required to denaturize a series of thermo-sensitive proteins found in many cell regions, especially in the nucleus.[19] Independent tests show that Airfree can reduce up to 96% of the number of airborne bacteria and fungus in 500 sq ft contaminated rooms with people working in it.

Airfree additional advantages

- Destroys micro-organisms regardless of its virulence and size
- Reduces toxic ozone
- Totally silent, does not disturb patients
- No maintenance required, no toxic filters to replace
- No installation required, "plug in" unit
- Low purchase and operating cost

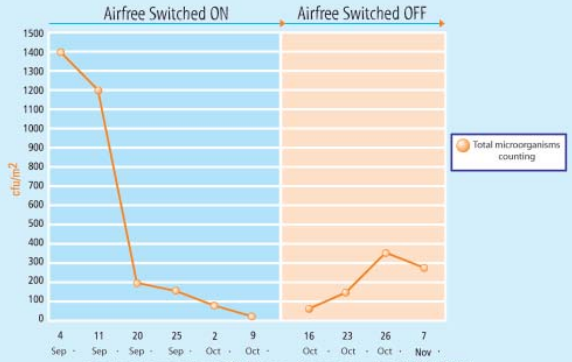
It is reasonable to presume that given Airfree extraordinary airborne bacteria and fungus contamination reduction rate a wide number of infections could be avoided with the installation of Airfree.

See the strawberries 10 day test*:



*test made in two equal closed rooms

Airfree Efficiency Test: microorganism reduction



Test performed by SGS Natec - Germany - Test M00-4990
ISO 17025 Independent Laboratory

See the complete list of test reports at:
www.airfree.com

Microbiologic content supervised by Cristiane Minussi, USP biologist.

Airfree® AIR PURIFIERS

Airfree® Products

Efficient: Airfree is tested in real working environments with people in them by credible ISO 17025 independent laboratories and universities in several countries.Airfree destroys any microorganism such as mold spores, bacteria, viruses, and dust mite allergens when passing through its patented high efficiency thermodynamic sterilizing system known as TSS™ technology regardless of how hazardous and small they might be.

Faster performance: Microorganisms reduction starts in 15 minutes.

Silent: No sound emission.

Exclusive: Airfree uses just heat TSS™ technology to destroy and incinerate airborne microorganisms. No fiber glass filters, triclosan coated paper or any kind of material that can be harmful to those operating or wasting it.

Ozone Reduction: Airfree exclusive TSS™ technology is the only one reducing ozone while destroying microorganisms.

Economic: Airfree model electric consumption is lower that a 50W light bulb. No replacement parts required like filters that may cost hundreds of dollars a year.

Easy Installation: Just place Airfree on the floor and plug it into the nearest electric outlet. No need for maintenance or special cleaning.

Bibliographical References

1. Rea E., Upshur R. Semmelweis revisited: the ethics of infection prevention among health care workers. CMAJ, 2001; 164 (10):1447- 1448.
2. Gallaguer R. Infection control: public health, clinical effectiveness and education. Br J Nurs., 1999;8(18):1212-14.
3. Pannuti CS, Grinbaum RS. An overview of nosocomial infection control in Brazil. Infect Control Hosp Epidemiol. 1995 Mar;16(3):170-4.
4. ANVISA. Curso Básico de Controle de Infecção Hospitalar. Brasília, 2000.
5. Hoeffel et al. Controle e prevenção de infecções – custos e economia. Jan., 2005. http://www.cih.com.br/custos.htm#l1
6. Beggs CB. The airborne transmition of infection hospital buildings: fact or fiction? Indoor and Built Environment, 2003;12:9-18.
7. Beggs CB. Engineering the control of airborne pathogens. School of Civil Engineering, University of Leeds, Leeds LS2 9JT, UK.
8. Zavascki AP, Cruz RP, Goldani LZ. Risk factors for imipenem-resistant Pseudomonas aeruginosa: a comparative analysis of two case–control studies in hospitalized patients. Journal of Hospital Infection,2005;59(2):96-101.
9. Sader HS, Gales AC, Pfaller MA, Mendes RE, Zoccoli C, Barth A, Jones RN. Pathogen frequency and resistance patterns in brazilian hospitals: summary of results from three years of the SENTRY antimicrobial surveillance program. Braz J Infect Dis vol.5 no.4 Salvador Aug. 2001.
10. Trindade, P. A., McCulloch, J.A., Oliveira, G.A., Mamizuka, E.M. Molecular Techniques for MRSA Typing: Current Issues and Perspectives. The Brazilian Journal of Infectious Diseases., 2003;7(1):32-43
11. Beck-Sague C, Jarvis WR. Secular trends in the epidemiology of nosocomial fungal infections in the United States. 1980-1990. National Nosocomial Infections Surveillance System. J Infect Dis. 1993;167:1247-1251.
12. Maschmeyer G, Ruhnke M. Update on antifungal treatment of invasive Candida and Aspergillus infections. Mycoses., 2004;47(7):263-76.
13. Warris A, Voss A, verwij PE., Hospital sources of Aspergillus species: New routes of transmission? Rev Iberoam Mocol, 2001, 18:156-162.
14. Richardson MD & Ellis M.. Clinical and laboratory diagnosis of systemic fungal infection. Hospital Medicine, 2000; 61: 610-614.
15. Brochura médica de divulgação medicamento V-Fend da Pfizer - 2004.
16. Lacerda RA. Infecções Hospitalares no Brasil. Tese de Doutorado, USP – Departamento de Enfermagem, 1995.
17. Starling CE, Couto BR, Pinheiro SM. Applying the Centers for Disease Control and Prevention and National Nosocomial Surveillance system methods in Brazilian hospitals. Am J Infect Control., 1997; 25(4):303-11.
18. Lepock JR. Role of nuclear protein denaturation and aggregation in thermal radiosensitization. Int J Hyperthermia. 2004 Mar;20(2):115-30.
19. Lepock JR. Cellular effects of hyperthermia: relevance to the minimum dose for thermal damage. Int J Hyperthermia. 2003 May-Jun;19(3):252-66.
20. Consulta Pública 109 / 2003

Healthy
Environment

Everything for Libraries

Airfree AIR PURIFIERS

Libraries Guide

Preservation of Assets. How to deal with mold?

Getting to know Mold

Mold is one type of fungus. They usually appear as stains that grow on organic material surface. Mold develops through spores invisible to the naked eye. Whenever spores lay over a surface, mildew will develop if favorable conditions for their growth are present. Fungus can enter internal environments through doors, windows, refrigeration devices, and previously contaminated material[4].

The presence of mold in libraries and its effects

Collections: Fungus feed themselves from the material substratum from where they settle on, in this case, the collections. The first visual effect is usually the appearance of stains. Within time, the weakening of paper fibers[2], leather, fabrics, or films will occur

Health: Allergic people may have allergy symptoms, and infections may occur in individuals who have immunological system deficiency[1,4]. Those are the most common consequences. Besides, some mildew species can produce toxins. Studies about that issue are still in process, however they suggest that toxins may be related to cases of lung hemorrhage, reactions on the immunological system (reducing the organism's ability to fight diseases), neurotoxic effects (such as fatigue, headaches, loss of memory, depression, humor swings, convulsions and trembling), and carcinogenic effects (that cause cancer)[4]. Therefore, it is unquestionable that mold can pose health risk.

Dealing with mold in libraries

Humidity: over 55%
Temperature: over 69.8ºF
Nutrients: mainly the cellulose found in documents.
Other than those conditions, bad ventilation, deficient lighting, and dust accumulation contribute to mold growth

Preventive steps[2]

- Use Airfree units as your local air treatment unit
- If necessary, use dehumidifiers
- Keep temperature below 69.8ºF

In general, humidity and temperature control should follow above parameters, however each material in the library responds differently to those conditions. Therefore, the acceptable levels for temperature and humidity for each material are listed below.

Material	Relative Humidity	Temperature
Paper	40% to 50%	67.94ºF to 69.8ºF
Film	30% to 40%	55 ºF to 67.94 ºF
Leather	50% to 55%	
Parchment	40% to 45%	

- Avoid stagnant air spots because they allow spores to deposit. Ideally environment should have good air circulation and if possible by air conditioning system.
- Ventilation and dehumidifier systems to have constant cleaning and maintenance, as they can become sources of contamination whenever they are not cleaned correctly[2,3].
- Keep rare pieces in one separated room, with constant temperature and humidity. The access to that area should be restricted.
- Use vacuum cleaners with at least 50% filtering capacity however, if possible, use vacuum cleaners with HEPA filters (99,9% efficiency).
- To clean floor use a moderated humid cloth. The simple action of walking is responsible for the dispersion of spores throughout the air. Never use brooms.
- Never allow plants to be placed near collections and assets, as those are adequate places for fungus to grow[2, 3].
- New acquisitions should be placed in quarantine for verification of mold[2,3] development and possible disinfection.
  Make a plan against disasters (floods for instance).

Clean mold

Find mold source[1, 2, 3] Search for possible leaking spots, gutters or other sources of humidity such as ventilation systems and verify shelves leaning against walls.

Protect yourself.[1, 3] Use high efficiency filter masks, latex gloves, apron, shoes, eyeglasses and protection hats (in case there is too much dirt). Asthmatic people, with cardiovascular problems or pregnant women may have difficulty breathing using masks. Before using them, consult with a doctor.

Isolate contaminated items. Place them in plastic bags, and move them to an area with no humidity and follow the cleaning instructions. Do not ever let the material placed in the plastic bags for too long, because the interior of the bags may generate a friendly environment for mold growth[1,3]. The cleaning should be done within 48 hours which is the average time taken for mold to develop.[3]

Start drying the material.[3] Make cleaning in cold, dry, and ventilated environments and, if possible, use an exhauster.

- Apply paper towels or printing paper over the wet surface so that they can absorb the humidity. Do that procedure several times
- A special attention should be given to book frames. For being generally dark and retaining humidity, they become propitious spots for mold development. During the cleaning process, take out the frames and follow the instructions above.

If you cannot dry it, freeze it. If damages are intense and you know that you will not be able to dry all the material within 48 hours, the best thing to do is to wrap the material and put it in the freezer. That procedure will not eliminate mold but will reduce its growth.[3]

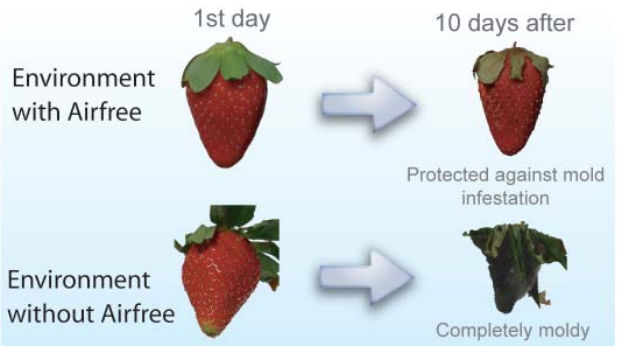
Cleaning the affected items.[3] Attention! Do not clean rare pieces by yourself. For that, hire a professional.

- Use HEPA filter vacuum cleaners, which are able to retain spores. "Wet-dry" commercial vacuum clears may also be used, with non toxic fungicide in its interior. For delicate items, use a brush attached to the vacuum cleaner, with either cotton gauze or screens, to avoid further damages. The careful use of brushes is also acceptable if done carefully to avoid mold from fixing itself even more in the paper's fiber.
- When disposing the vacuum cleaner filter, put it in a plastic bag and take it out of the building.

Clean up the affected area.[3] Not only collections should be cleaned, but also the whole affected room. If it is a large area, contact a qualified professional. Clean up shelves and floors using commercial "wet-dry" vacuum cleaners that contain non toxic fungicide in its interior.

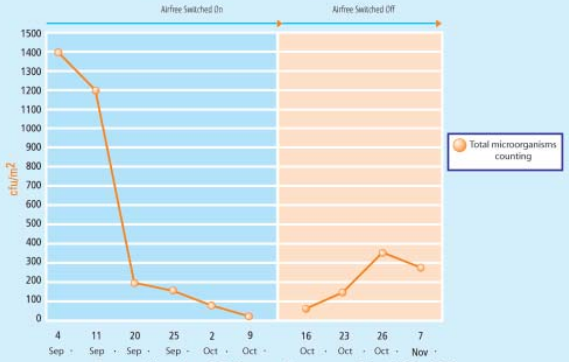
- Clean the air conditioning system before bringing back the cleaned material.

See the strawberries 10 day test*:



*test made in two separated closed chambers

Efficiency Test: microorganism reduction



Test realized by SGS Natec - Germany - Test M00-4990
Independent Laboratory ISO 17025

See the complete list of test reports at:
www.airfree.com

This guide had Cristiane Minussi's collaboration, USP biologist professional responsible for the microbiological nature information.

Airfree® AIR PURIFIERS

Airfree® to fight mold in libraries

Fungus spores can be found in different places and indoor environments are never spore free even after cleaning4. Airfree, the high efficiency air purifier, operates by eliminating environmental fungus and bacteria with 99% tested efficiency. Airfree greatest difference with other technologies is the variety of efficiency independent tests performed by independent ISO 17025 certified laboratories.

Airfree® Products

Efficient: Airfree is tested in real working environments with people in them by credible ISO 17025 independent laboratories and universities in several countries.Airfree destroys any microorganism such as mold spores, bacteria, viruses, and dust mite allergens when passing through its patented high efficiency thermodynamic sterilizing system known as TSS™ technology regardless of how hazardous and small they might be.

Faster performance: Microorganisms reduction starts in 15 minutes.

Silent: No sound emission.

Exclusive: Airfree uses just heat TSS™ technology to destroy and incinerate airborne microorganisms. No fiber glass filters, triclosan coated paper or any kind of material that can be harmful to those operating or wasting it.

Ozone Reduction: Airfree exclusive TSS™ technology is the only one reducing ozone while destroying microorganisms.

Economic: Airfree model electric consumption is lower that a 50W light bulb. No replacement parts required like filters that may cost hundreds of dollars a year.

Easy Installation: Just place Airfree on the floor and plug it into the nearest electric outlet. No need maintenance or special cleaning.

Bibliographical References:

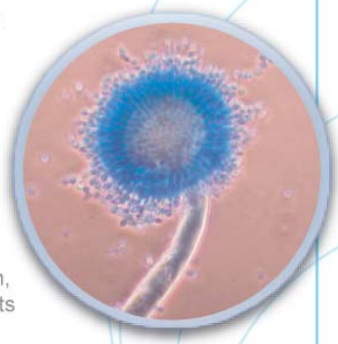
1- http://www.ccaha.org/mold_eng.html
2- siarq02.siarq.unicamp.br/cpba/pdf_cadtec/38.pdf
3- http://www.nedcc.org/plam3/tleaf39.htm
4- Guia de "Umidade em ambientes internos e saúde" elaborado pelo Instituto de Medicina da Academia Nacional dos Estados Unidos, fornecido pela Universidade de Harvard.

Mold Guide

Mold, undesirable and hard to control

What is mold?

Mold is formed by microscopic creatures belonging to the Fungi Kingdom. When tiny airborne spores of mold burst, and then land on a favorable surface, they proliferate into visible colonies, and find new favorable surfaces on which to further develop. Fungal growth requires oxygen, adequate temperature, nutrients and water.



Temperature tolerance:
Thermophiles - 35ºC + human pathogens such as Aspergillus Fumigatus
Mesophiles – 18ºC to 35ºC
Psychrophiles – some fungi grow at 4ºC or below.

Nutrients:
Paper, wallpaper, wallboard, sugars (fruits, vegetables), fabrics, wood, dust, etc

How do I know if my environment has mold problems?

- If you see whitish, greenish, bluish, or even dark spots on the walls or ceiling the place may have mold problems.
- Rooms that accumulate humidity such as bathrooms, kitchens or air conditioning systems usually have problems with mold because fungi develop in high humidity environments.
- Rooms with water leakage or infiltrations may have mold infection.
- If the mold infection is in closets, check for leakages from water pipes nearby.
- High risk buildings :

- Near forests, due to high concentration of mold colonies
- Nearby the sea or a river as the high humidity level raises the development of new colonies.
- Buildings with poor sun exposure, as the sun is a natural germicide and helps prevent humidity.

Can mold make me sick?

Yes. In addition to its being an unpleasant odor and sight, mold can cause harmful effects to human health that might turn to allergic infections and toxic reactions.

Allergic Effects

The most common are:
- Nasal congestions and irritation;
- Mucous membrane irritation;
- Allergic reactions – Rhinitis and Asthma;
- Sneezing and coughing;
- Throat and eye irritation;
- Difficulty breathing;
- Asthmatic attacks;
- Itching and skin stains.

Infectious Effects

Immune suppressed patients are more likely to develop mold infections. Included in such groups we can highlight the danger to patients such are:
- HIV positive
- Organ transplanted
- Burned
- Under chemotherapy or radiotherapy;
- Newborns
- Elderly
- Other immune-suppressed patients

Toxic Effects

Mold toxins studies suggest that toxins may be the cause of:
- Pulmonary hemorrhage;
- Reactions in the immunological system (reducing the ability of the organism to react to diseases);
- Neurotoxin effects such as fatigue, headaches, memory loss, depression, erratic moods, convulsions and shaking;
- Potential cancer trigger.

How to control mold?

It is impossible to completely eliminate airborne mold. Specialists warn that living in environments entirely safe from mold spores, bacteria or viruses would not be healthy since our immunological system needs to be active. It is recommended that steps be taken to reduce airborne microorganisms, not complete extermination.

Prevention

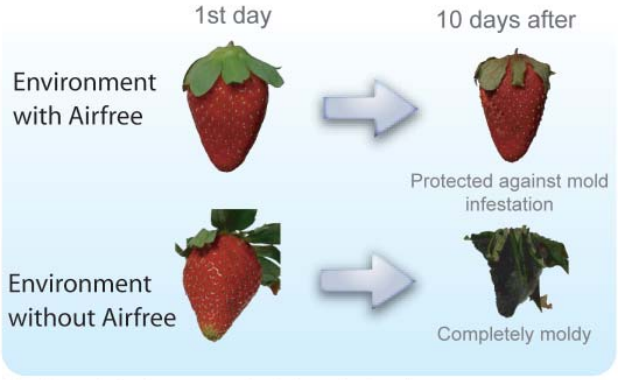
• Reduce humidity in your home by opening windows for approximately 30 minutes daily;
• Prevent leaks due to rain; and when unavoidable, dry and treat water damage within 24 to 48 hours;
• Regularly clean places that accumulate humidity such as showers, faucets and pipes and the floor areas around such fixtures;
• Limit carpets and plants in your home;
• Use Airfree to drastically reduce high contamination levels.

Clean your home

• Use a cloth or a sponge with one solution containing: 1 cup of chlorine diluted in 1 quart of water. Scrub surfaces with this solution, then clean again with water and detergent. Allow to dry. (WARNING: Never mix chlorine with ammonia products, as the result is extremely toxic.).
• Whenever possible, leave objects exposed to sunlight after cleaning. It is very important that objects are dried after cleaning otherwise they will be subject to new mold contamination.
• Porous materials such as wood, fabric, cushions, and mattresses retain water and are likely to be contaminated, making it difficult to clean them. In the event that these objects are contaminated, it is advised to dispose them.
• Use great care: always use gloves, mask, and apron and maintain high air circulation during the cleaning process.

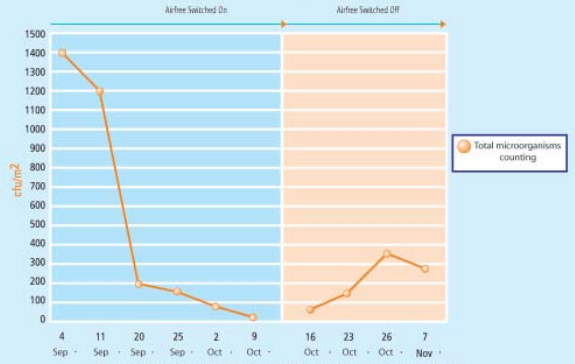
Healthy environment, healthy family

See the strawberries 10 day test*:



*test made in two separated closed chambers

Efficiency Test: microorganisms reduction



Test realized by SGS Natec - Germany - Test M00-4990
Independent Laboratory ISO 17025

See the complete list of test reports at:
www.airfree.com

This guide is based in "Humidity in internal environments and health" elaborated by the Medicine Institute of the National Academy of the United States, supplied by Harvard University and Revisited by Cristiane Minussi, biologist from University of São Paulo, who was responsible for the microbiological informations herein contained.

Airfree® AIR PURIFIERS

Airfree® Role

Indoor air pollution affects our health. It is known that the presence of mold spores may cause or aggravate respiratory problems at home or at work. Airborne mold spores are the seeds for new mold infection or building infestation. Therefore the key to control infections or infestations is to destroy airborne mold spores and clean preexisting mold colonies. Consequently, we recommend the use of Airfree high efficiency air sterilizers together with the preventions measures previously suggested. Airfree products have a worldwide record of excellence in controlling and preventing mold.

Treating the air you breathe, is a matter of health. Have an attitude!

Airfree® Air Products

Efficient: Airfree is tested in real working environments with people in them by credible ISO 17025 independent laboratories and universities in several countries.Airfree destroys any microorganism such as mold spores, bacteria, viruses, and dust mite allergens when passing through its patented high efficiency thermodynamic sterilizing system known as TSS™ technology regardless of how hazardous and small they might be.

Faster performance: Microorganisms reduction starts in 15 minutes.

Silent: No sound emission.

Exclusive: Airfree uses just heat TSS™ technology to destroy and incinerate airborne microorganisms. No fiber glass filters, triclosan coated paper or any kind of material that can be harmful to those operating or wasting it.

Ozone Reduction: Airfree exclusive TSS™ technology is the only one reducing ozone while destroying microorganisms.

Economic: Airfree model electric consumption is lower that a 50W light bulb. No replacement parts required like filters that may cost hundreds of dollars a year.

Easy Installation: Just place Airfree on the floor and plug it into the nearest electric outlet. No need for maintenance or special cleaning.

Virus Guide

Healthy Environment

Virus Guide

Airfree AIR PURIFIERS

Viruses and heat inactivation

By Airfree Biological Division - Dr. Cristiane Minussi
October 4, 2005

While viruses are not considered living organisms they depend upon living cells to replicate. The structure of the virus includes an envelope constituted by proteins and genetic material of DNA or RNA. All of these components are thermo-sensible. The genetic material and the proteins have complex structures regulating their function, and change in this structure may result in a loss of function known as denaturizing. There are two basic means by which denaturing occurs: a change in PH or temperature.

Some examples: viruses and heat inactivation

Numerous studies have focused on virus inactivation through heat application. For example, HIV virus in the blood will die when exposedto 77 degrees C[1] for as little as 0.006 seconds[1]. In another study, parvovirus and phage phiX174 were completely inactivated when exposed to 103 degrees C for 90 seconds[2]. In the case of the Herpes virus, high

temperatures inhibit the release of proteins necessary for the success of the infection[3].

Airborne viruses are no different. One study of respiratory sincytyal virus (the major cause of wheezing in children less than 2 years old) showed that when the virus is exposed to 65 degrees C for 45 minutes, the infection capacity is diminished and conformational proteins are transformed, resulting in a reduction of of substances responsible for the inflammation, hyper-responsiveness and damage to airpassages[4]. The SARS virus (causative agent of severe acute respiratory syndrome) has thermo-sensible proteins in its envelope, which can be totally denaturized at 55 degrees C, the same temperature at which SARS virus was also reported to be inactivated[5]. The influenza virus (the following information is redundant I believe)contains proteins essential for infectious transmission that are sensible to variations of pH and temperature between 55-70 degrees C [6].

The avian flu

The virus, responsible for the bird flu, can be spread from the poultry to humans and until now, about 20 millions of chickens have been slaughtered in order to control the spread of the virus[10]. Since 1997, it has been reported more than 100 cases of the disease in humans, resulting in more than 50 deaths[8]. Experts are very concerned about the rising of a pandemic new strain of the virus because of the mixing between avian and human viruses. It's suspected that the virus could infect someone who is already infected with a human flu virus like A, resulting in genetic rearrangement and a novel pathogen that could be highly virulent [11] and easily transmitted human-to-human[13].

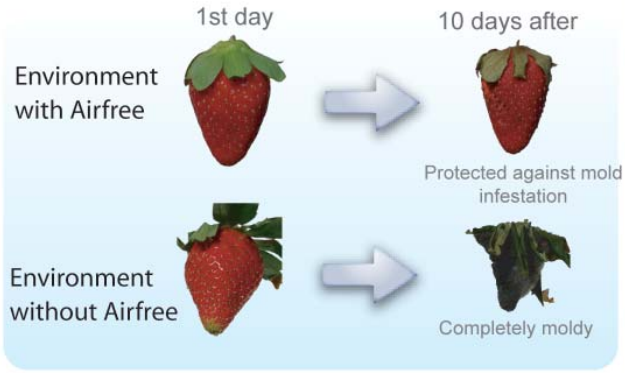
Transmission and symptoms.

All birds are susceptible to the avian virus and some types of wild birds are natural reservoir of influenza type A virus. They have a large amount of avian virus in their secretion, saliva and feces that can contaminate domestic poultry when in contact. Furthermore, their dropping or saliva may contaminate water, rivers, feed and even human shoes[8]. Infected droplets may settle on conjunctival, nasopharyngeal or other respiratory mucosal epithelium in humans[12] leading to symptons ranged from typical influenza-like symptoms (e.g., fever, cough, sore throat, and muscle aches) to eye infections (conjunctivitis), pneumonia, acute respiratory distress, viral pneumonia, and other severe and life-threatening complications[13].

Avian Flu characteristics and your heat instability.

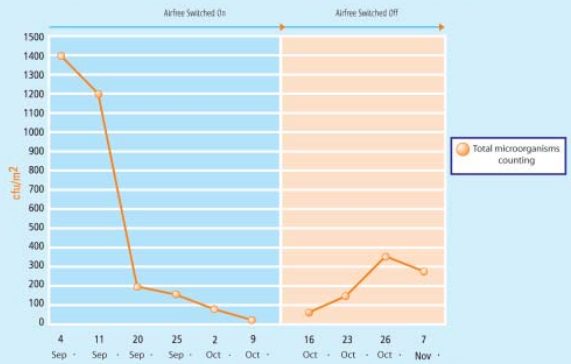
The avian virus, H5N1, is a negative-sense, single-stranded RNA virus[12], which has two types of proteins in its surface: hemagglutinin (HA) and neuraminidase (NA)[13]. It is known from the literature that the virus can be inactivated by 56ºC in 3 hours and 60ºC in 30 minutes[8]. Thus, only four degrees of temperature elevation reduced the time of inactivation exposure about 85%.

See the strawberries 10 day test*:



*test made in two separated closed chambers

Efficiency Test: microorganism reduction



Test realized by SGS Natec - Germany - Test M00-4990
Independent Laboratory ISO 17025

See the complete list of test reports at:
www.airfree.com

This guide had Cristiane Minussi's collaboration, USP biologist professional responsible for the microbiological nature information.

Airfree® AIR PURIFIERS

Airfree® and its HETD Ceramic Core internal temperature.

Here, we have listed only few examples of viruses' inactivation by heating and in all those cases, the temperatures were below the Airfree's HETD ceramic core internal temperature of 200 degrees Celsius. Since 1977, studies have showed that the higher the temperature, the faster the proteins get denatured[7]. Therefore, we may infer that the Airfree purifier may be efficient in the inactivation of the virus proteins in most cases, resulting in the lost of the infection ability.

Airfree® Products

Efficient: Airfree is tested in real inhabited working-environments by credible ISO 17025 independent laboratories and universities in several countries. Airfree destroys microorganisms such as mold spores, bacteria, viruses, and dust mite allergens when passing through its patented high efficiency thermodynamic sterilizing system known as TSS™ technology, regardless of how hazardous and small they might be.

Silent: No sound emission.

Exclusive: Airfree uses only heat TSS™ technology to destroy and incinerate airborne microorganisms. No fiber glass filters, triclosan coated paper or any type of material that can be harmful to

OzoneReduction: no other airpurifying device matches Airfree's exclusive TSS™ technology which both reduces ozone, while simultaneously destroying microorganisms.

Economic: Airfree's electric consumption is lower that a 50W light bulb. No replacement parts required such as filters that may cost hundreds of dollars a year.

Easy Installation: Just place Airfree on the floor and plug it into the nearest electric outlet. No need for maintenance or special cleaning.

Bibliographical References:

1- Charm SE, Landau S, Williams B, Horowitz B, Prince AM, Pascual D. High-temperature short-time heat inactivation of HIV and other viruses in human blood plasma. Vox Sang. 1992;62(1):12-20.
2- Lelie PN, Reesink HW, Lucas CJ. Inactivation of 12 viruses by heating steps applied during manufacture of a hepatitis B vaccine.
J Med Virol. 1987 Nov;23(3):297-301.
3- Morrison EE, Wang YF, Meredith DM. Phosphorylation of structural components promotes dissociation of the herpes simplex virus type 1 tegument. J Virol. 1998 Sep;72(9):7108-14.
4- Jaovisidha P, Peeples ME, Brees AA, Carpenter LR, Moy JN. Respiratory syncytial virus stimulates neutrophil degranulation and chemokine release. J Immunol. 1999 Sep 1;163(5):2816-20.
5 -Wang Y, Wu X, Wang Y, Li B, Zhou H, Yuan G, Fu Y, Luo Y. Low stability of nucleocapsid protein in SARS virus. Biochemistry. 2004 Aug 31;43(34):11103-8.
6- Epand RM, Epand RF. The Thermal Denaturation of Influenza Virus and its
Relationship to Membrane Fusion. Biochemical Journal Immediate Publication. Published on 7 May 2002 as manuscript BJ20020290.
7- Palumbo SA, Smith JL, Kissinger JC. Destruction of Staphylococcus aureus During Frankfurter Processing. Applied and environmental micorbiology, 1977:740-744.
8- Shih-Wen Hung, I-Yin Lin, Tzong-Luen Wang. Emerging Infectious Disease (1): Avian Influenza. Med. 2005;3 Suppl 2:S40-S46
9- Fleck, F. Avian flu virus could evolve into dangerous human pathogen, experts fear. Bull World Health Organ, mar. 2004; 82 (3):236-237. ISSN 0042-9686.
10- Abott A., Pearson H. Fear of human pandemic grows as bird flu sweeps through Asia. Nature, febr 2004; (427): 472-73.
11- Andresen M. Avian flu: WHO prepares for the worst. CMAJ. 2004 Mar 2;170(5):777.
12- KY Yuen, SSY Wong. Human infection by avian influenza A H5N1. Hong Kong Med J 2005;11:189-99
13-Center for Disease Control and Prevention. Avian Influenza Infection in Humans. October 17, 2005. http://www.cdc.gov/flu/avian/gen-info/avian-flu-humans.htm